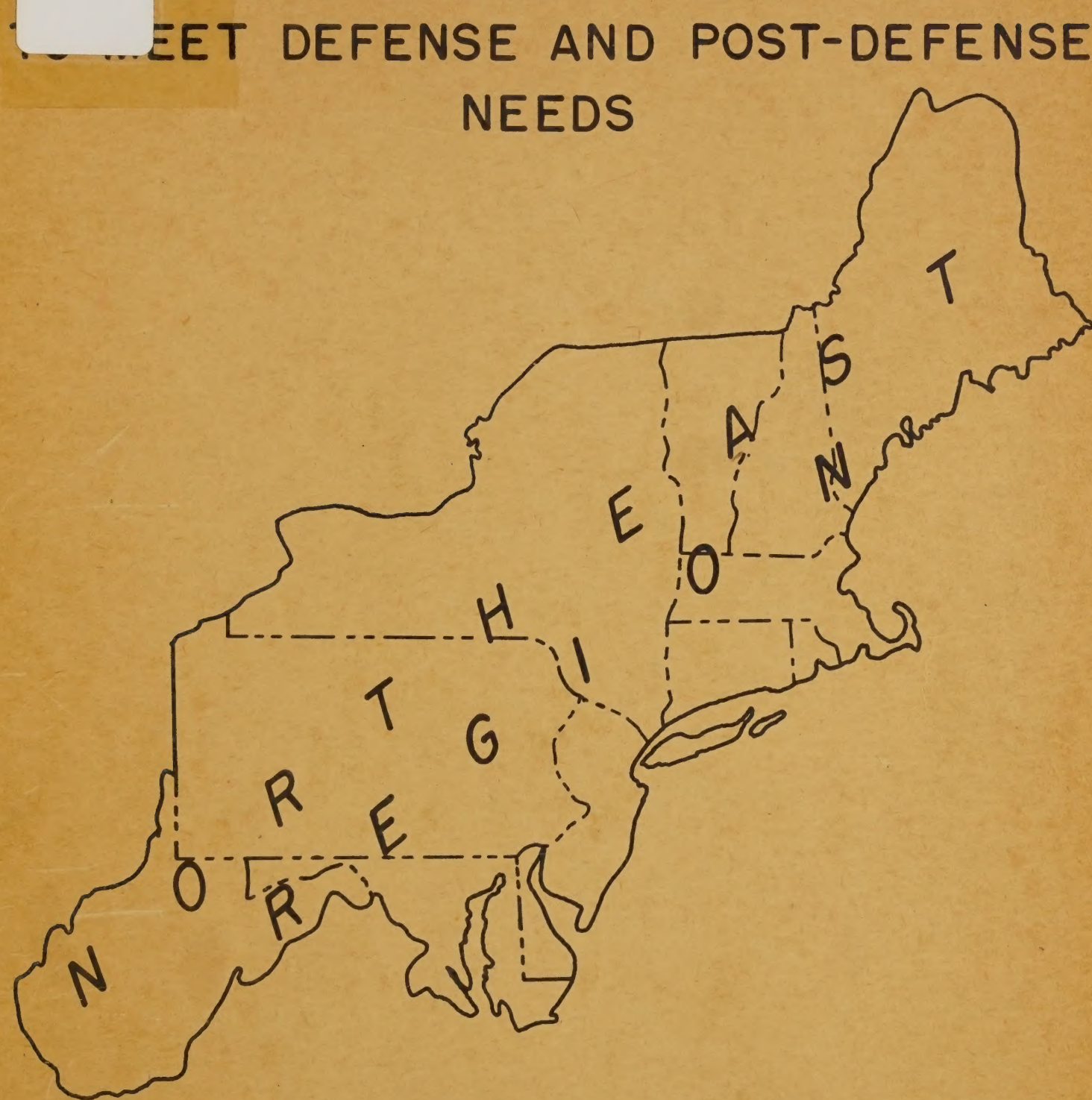


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TO MEET DEFENSE AND POST-DEFENSE
NEEDS



Prepared by the Division of Farm Management and Costs
U. S. Department of Agriculture Bureau of Agricultural Economics

Upper Darby, Pennsylvania

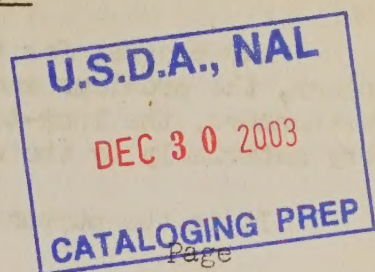
November 1941

**United States
Department of
Agriculture**



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FARMING ADJUSTMENTS IN THE NORTHEAST
TO MEET DEFENSE AND POST-DEFENSE NEEDS/1



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INTRODUCTION

The nation is undertaking a tremendous defense activity which is having profound effects on agriculture, and in which agriculture must play its part. There is now definite evidence that the production of certain foods must be expanded materially if we are to meet the requirements of the Lend-Lease Program and at the same time feed the people of this country adequately. It is estimated that in 1942 the needed milk production in the United States will be 7 percent over 1941, and the needed egg production 11 percent over 1941. The 1943-45 needs will probably be higher.

Conditioned as we have been by chronic farm surpluses, it is difficult for most people to realize that we are now facing shortages in some farm products like those we have already encountered in some industrial products.

If the needed agricultural production is to be obtained most efficiently, farming will have to expand more in some areas of the country than in others, and different farmers within any single area may find their best adjustments to be quite different. But it is not probable that the needed quantities of dairy products; poultry products; fruits, and vegetables--the principal commodities produced for sale by northeastern agriculture--can be obtained without substantial increases in the Northeast.

/1 Helpful suggestions were received from the teaching, research, and extension personnel of the agricultural colleges in the states of the region, and from staff members of the Federal Extension Service and other Federal agencies. Some revisions were made on the basis of ideas brought out at the northeastern conference on agricultural planning to meet defense needs, held at Swarthmore, Pennsylvania, June 16 to 19, 1941.

Any program for the defense period should consider, among other things, the problems and desirable adjustments of the longer term. Furthermore, the long-term problems and adjustments may be influenced very materially by the war.

It is the purpose of this regional report to:

- (1) Estimate the agricultural production that is expected in the Northeast during 1943-45.

These estimates were developed in view of certain price assumptions for individual commodities and with the general assumption that the war and our "all out" defense efforts will continue through 1943-45, or, if the war should end, that the United States would participate actively in world rehabilitation. It was also assumed that agricultural programs would continue essentially as at present.

- (2) Estimate the agricultural production of the Northeast during 1943-45 if farmers were to make the maximum response which would be profitable under the assumed prices, and at the same time not make changes that would conflict too seriously with needed long-term adjustments. This will be referred to at times as "desirable" production. The assumptions used were the same as for expected production except in the case of agricultural programs. It was assumed that programs would be modified, if necessary, to meet increased food needs.
- (3) Suggest desirable adjustments in northeastern agriculture for the defense period and for the longer term. Suggestions are made regarding farmer adjustments and steps that might be taken by public agencies.

THE BASES OF FARMING ADJUSTMENTS

The agriculture of the Northeast, particularly because of its age, has probably undergone more adjustments than that of most other parts of the country. During the 150 to 300 years of farming experience in the Northeast, the broad adjustments have been from self-sufficiency to specialized and commercialized agriculture, from extensive to intensive operation, from sheep and beef cattle to dairy cattle and poultry, from field crops to truck crops, from oxen to horses, and from horses to tractors and trucks. These changes and others have been a part of the efforts of farm people to compete and survive as farmers.

The present need for farming adjustments in the Northeast is in part only a continuation of long-time competitive pressures. Added to these are the heavy impacts of the war and of our defense efforts, which dominate the present scene and the outlook for the next few years.

The Physical and Economic Setting

A large part of the Northeast lacks in many respects the physical resources of the better farming regions of the country. Northeastern soils require heavy applications of fertilizer. Topography and soil are often such that modern equipment and methods cannot be used effectively. In general, technological developments in farming have helped some sections of the Northeast, but they have also contributed to the development of low-income farming areas and abandonment of agriculture in the less favored sections.

The economic setting of northeastern agriculture offsets to some degree its physical disadvantages. The location of a large consuming population within the region provides nearby markets and cushions the drastic changes in farm prices found in many other areas. It permits types of farming and methods of operation which would not otherwise be possible, and allows the region to support a much larger farm population than would be the case with less favorable markets. The urban and industrial developments of the area also provide off-farm employment to many farmers.

Largely as a result of nearby markets, northeastern farmers have found it profitable to operate intensively, to import large quantities of livestock feed from other regions, and to buy large quantities of fertilizer and other products of industry. This intensive, "over capacity" basis of operation results in high annual cash expenses and makes northeastern agriculture especially vulnerable to competition from other regions.

The Organization of Northeastern Farming

The principal commodities produced for sale on northeastern farms are dairy products, poultry products, fruits, and vegetables. Tobacco is important in 8 or 10 counties and grain is grown for sale in several states. Other minor enterprises--such as sheep, hogs, beef cattle, and maple products--are scattered over the region, often with concentrations in certain places. A large part of the farm land of the Northeast is in forest and most farms have considerable woodland. Some of the farm wood lots are of such size and quality as to have immediate commercial possibilities.

Although northeastern agriculture, in general, operates on a commercial, intensive basis, there are many farms of a different nature. Part-time farms are very numerous in the vicinity of urban and industrial areas. Self-sufficing farms occupy large tracts of the less favored land. The commercial production of these two groups is very small. So-called "hobby" farms, owned by wealthy individuals, are found near some cities. Low-income farming areas occur in every State and include commercial farms as well as self-sufficing and part-time farms.

About 70 percent of the commercial farms are specialized enough to be called dairy farms, poultry farms, and the like (Table 1). Many of those classified as general could be called dairy-poultry farms, dairy-truck farms, etc.

Most northeastern farms are family-sized farms in the sense that a large part of the labor is supplied by the operator and his family.

Few of the farms have a total labor supply for the year exceeding the equivalent of 4 full-time men. Over much of the region a typical dairy farm would have a labor supply equivalent to 2 full-time men, with the operator and his family accounting for $1\frac{1}{2}$ of the 2-man equivalent.

Table 1. -- Types of farming in the Northeastern Region, 1930 ^{/1}

Type	:	Number of farms	:	Percent
Dairy	:	167,217	:	
Poultry	:	42,948	:	
Other livestock	:	<u>13,455</u>	223,620	36
	:		:	
Fruits, vegetables,	:		:	
tobacco, etc.	:	76,970	76,970	12
	:		:	
General	:	128,959	:	
Cash grain	:	<u>6,642</u>	135,601	22
	:		:	
Part-time	:	73,364	:	
Self-sufficing	:	<u>72,480</u>	145,844	24
	:		:	
All other	:	36,044	36,044	6
	:		:	
Total	:	618,079	618,079	100

^{1/} 1930 Census of Agriculture.

THE DEFENSE PERIOD

As long as "all-out" defense efforts continue, the outlook is for higher prices of farm products in the Northeast. The important farm products of the region are "protective" foods. Many are the foods needed by Britain. In addition, there is every reason to believe that, with higher industrial activity and high consumer purchasing power, the general price level will rise. The outlook for gross farm income in the region is the best in a decade.

On the other hand, farming costs may be expected to be higher. Wages of farm laborers, which have always been relatively high in the Northeast, have already risen considerably and will probably increase more. Serious shortages of farm labor may develop at peak periods in some sections. Fertilizer and livestock feed which are bought in large quantities by northeastern farmers are likely to be higher in price, and there may even be feed and fertilizer shortages if the pressure on transportation systems becomes too great. A recent survey of feed dealers in Maine indicated that the usual inventory of grain in the State is only a 10-day supply. ^{/2}

^{/2} Activities of the Maine Land Use Committee Relating to the Impacts of War and Defense, Joint Land-Grant College--BAE Committee, 1941.

Some other costs will be higher and none is likely to be lower. Real estate taxes may not change much, but income tax payments by farmers will increase.

It is probable that farm receipts will increase more than farm expenses in the region, and that net farm incomes, in general, will be higher than during most of the past decade. It is no exaggeration to say that in northeastern agriculture prosperity and farm labor problems go hand in hand. Nevertheless, the next few years will require many farm adjustments and the aftermath of the defense efforts may require even more.

The major contribution that northeastern farmers can make to national defense is to produce larger quantities of dairy and poultry products and of some fruits and vegetables. Simultaneous production increases in a number of products, each of which may be a close alternative to the other, raises many questions. Needless to say the problems and the adjustments will vary from farm to farm. Some dairy-poultry farmers, for example, may find it best to increase dairy and decrease poultry; others may find the reverse to be true. In any case the efforts of individual farmers will need to be supplemented by adjustments in agricultural programs.

The following two sections of this report discuss briefly and in a general way some of the farmer and program adjustments which appear to be desirable during the defense period. More specific and more detailed suggestions, both for the defense period and the longer term, are found in later sections which cover different types of production.

Farmer Adjustments

During the period of high defense activity the problems of northeastern farmers will be centered around methods of maintaining or expanding production along present lines in the face of possible shortages of labor, feed, fertilizer, and other items of production. In general it seems that from the farmer's standpoint the following adjustments would be sound on northeastern commercial farms during the prospective favorable years of the defense period. Most of them have already been put into operation to some degree by certain farmers.

- (1) Expand production moderately in present enterprises, but avoid heavy expansion involving long-time commitments and increased indebtedness. New investment in buildings should be viewed with caution. Costs will be high and large investments at this time will involve considerable risk. In some cases, however, especially with poultry, it may be possible to provide additional buildings through use of scrap materials and labor available on the farm.

By and large the increased production can be and should be obtained on present farm units, especially those adapted to intensive operation. With prospective price relationships it should be profitable to make such adjustments as heavier fertilization of crops, heavier feeding of livestock and the use of certain improved practices. All of these mean greater intensity of operation.

- (2) Make the best possible use of available labor. Careful planning of operations and the greater use of machinery will enable many farmers to maintain or expand production, even with a reduced labor supply. With sufficient incentives, including price assurances, family labor may be willing to work longer hours. Father-son partnerships may serve to keep young men on farms in some cases.

Where present hired labor is satisfactory, it may be good business to raise the wage level, increase privileges, or take other steps in order to keep the present supply. Substitute labor at the same price is likely to be less satisfactory. In some cases, livestock enterprises might be added to keep labor over the winter.

- (3) Be prepared to meet shortages in feed and other materials of production. To guard against possible transportation difficulties, farmers should plan to increase the quantity of feed they carry on hand. This means it will be necessary to plan for more storage capacity. Plans for protecting stored feed from damage will be needed. By anticipating future needs and available supplies of feed and other materials, it should be possible to plan for substitutes where shortages seem probable.

- (4) Use increased income to:
 - a. Improve or at least maintain soil fertility.
 - b. Put farm plant and equipment in good repair.
 - c. Reduce indebtedness.
 - d. Establish well-balanced and economic-sized farm units.

It is realized that such a program may not provide the increased production needed and that special measures may be required to encourage and permit farmers to expand more.

Program Adjustments

The various public agencies concerned with agriculture are doing and can do, much to make possible the needed production and to help farmers make sound adjustments. Among other things, public agencies may have opportunities along the following lines:

- (1) Price assurances to farmers after determination of price policy.
- (2) Changes in allotment and conservation programs to encourage needed production.
- (3) Educational programs to keep farmers informed, especially with regard to prospective prices and profitable production practices.
- (4) Special incentives, such as feed-materials programs whereby farmers could obtain livestock feed at low cost.
- (5) Assuring adequate supplies of labor and materials.
- (6) Providing credit.

During the emergency period there will be some conflict between conservation programs and the need for increased production. In the Northeast at least this should not be a serious problem, although some desirable conservation practices may need to be modified temporarily.

THE POST-DEFENSE PERIOD

The problems of the aftermath are likely to be those associated with the shrinking demand and falling prices that have always followed major wars. It is to be hoped, of course, that by courageous measures we shall be able to do much more than we have on previous occasions to prevent falling prices and to cushion their effects.

A further problem of the post-defense period may be increased inter-regional competition. Under the most favorable circumstances likely with respect to world trade after the war, there could develop a fairly free movement of goods between nations. With the less favorable circumstances, which may result regardless of the outcome of the war, international trade might be negligible. Under the latter condition, the regions of this country which have been heavily dependent upon export markets will be looking for alternatives. In many cases the best alternatives will be the dairy, poultry, and vegetable products which are the principal commodities produced for sale by northeastern farmers. Such competition might develop on a scale not soon since the opening up of the West.

Farming adjustments during the post-defense period will depend on the severity of the situation. In general, efforts to increase efficiency of operation should pay good dividends. The history of northeastern agriculture has been one of increasing production per acre, per animal, and per man. Further opportunities exist to reorganize farms into economic-sized and well-balanced units, and to adopt improved practices. Full advantage should be taken of the market opportunities of the region. In addition, conservation should be a goal.

One of the best adjustments in preparation for the post-defense period probably is to use the increased income of the defense period to reduce debts and put the farm plant in good repair. It is realized that this would raise questions as to the best use of available funds and labor. On the many northeastern farms not adapted to permanent agriculture, expenditures to repair the farm plant should be considered in light of the apparent length of time that the farm will be occupied.

The remainder of the report considers, by types of production, the farming adjustments that appear to be desirable in the Northeast for the defense period and for the longer term. Estimates of expected and "desirable" production for the 1943-45 period are also presented.

MILK PRODUCTION

Production Situation

Dairying is one of the major agricultural enterprises in the Northeast Region. In 1930, 27 percent of the farms were sufficiently specialized to be classified as dairy type farms.^{/3} This group owned 66 percent of all the cows kept for milk and accounted for 73 percent of all milk produced. Dairy cows were also kept in combination with other enterprises on many of the other major types of farms. Approximately 72 percent of all cows kept for milk in the Northeast were in herds of less than 20 head, and 39 percent were in herds of less than 10 head (table 2). The smaller herds are frequently combined with other enterprises such as poultry, fruit, vegetables, and forestry. There is considerable variation in milk production situations both within and between different areas of the region.

Milk production in the region is centered around a grass-type agriculture. Under favorable weather conditions, nearly all roughage is grown locally. Fields that may have had no cultural attention for many years still produce some hay or pasturage, while fields receiving some attention usually respond favorably. Oats, barley, and grain corn are grown on many farms for use by the dairy herd, but a major part of the concentrate used in milk production is bought from other regions. In recent years, adverse weather conditions in the form of droughts and frosts have had considerable effect upon crop production in certain areas within the region. Shortages of hay and pasturage during a dry season bring difficult problems for the dairy farmer. However, compared with conditions in some regions, the weather and growing season are fairly dependable.

Although dairymen in the Northeast are faced with several problems, the dairy industry is expanding. Total milk production in 1940 was the highest on record. Preliminary estimates by the Agricultural Marketing Service indicate that the 1941 production will surpass that of the previous year.

For the first 6 months in 1941, a favorable price ratio existed between milk and dairy grain. While it is estimated that the price of grain will rise between 30 and 40 percent during the next few years, it is also expected that the ratio will remain favorable.

The effects of a widespread June drought is becoming more apparent. Carrying capacity of pastures is considerably below normal in many localities, and the hay crop is reduced from 5 to 25 percent over much of the region. Unless roughage supplies become available at a reasonable price, some farmers may find it necessary to reduce the number of head carried over the winter feeding period in order to meet the situation. This reduction would probably be made among the heifers and low-producing cows. The long-time effect of such an adjustment would be felt in the 1943-45 period. Under favorable price relationships, concentrates could be substituted for roughage to a considerable extent and present numbers of dairy animals could be maintained.

^{3/} 1930 Census of Agriculture.

Table 2. -- Percentages of all cows milked found in herds of various sizes, all farms by states in Northeast Region, April 1, 1930 /1

	Percentages in herds of various sizes						
State	Less than	3	3 - 9	10 - 19	20 - 29	30 - 49	50 and more
Maine	15.6	50.2	24.4	5.9	2.8	1.0	
New Hampshire	8.9	33.2	31.2	13.5	9.0	4.1	
Vermont	2.1	16.1	36.0	25.4	15.6	4.8	
Massachusetts	7.0	24.8	32.5	16.5	10.9	8.4	
Rhode Island	6.3	18.5	33.2	18.3	14.0	9.7	
Connecticut	7.6	22.9	35.0	16.6	11.2	6.8	
New York	3.8	21.0	36.4	22.1	12.9	3.8	
New Jersey	7.7	18.2	30.4	17.5	14.2	12.0	
Pennsylvania	8.6	45.0	33.8	8.2	3.0	1.4	
Delaware	14.3	39.4	33.2	8.6	2.3	2.0	
Maryland	11.7	36.3	33.1	10.5	5.3	3.2	
West Virginia	32.5	51.3	10.6	3.0	1.8	.8	
Northeast Region	8.1	30.9	32.9	15.5	9.0	3.5	
1/ 1930 Census of Agriculture.							

Along with other farmers in the Northeast, dairy farmers have found it difficult to obtain sufficient labor. Adjustments to this situation have been outlined. Many dairymen have already bought milking machines in an attempt to maintain or increase production even though the available labor supply has diminished.

Adequate information is lacking concerning the ability of the northeastern dairy industry to expand without expanding present barn facilities. A recent report summarizing this information for over 500 dairy farms in New York indicated that 8.5 percent of all stanchions were vacant and that 23.9 percent were occupied by young stock./4 Although present barn facilities are being used at near capacity on many dairy farms, it is believed that a moderate increase in cow numbers can be cared for without necessitating much capital investment in buildings. In some cases, there is extra room; in other cases, dairy young stock could be shifted to poorer conditions to make room for additional cows. The shift to grass silage as well as the replacement of horses by tractors may allow remodeling of some barns to accommodate more cows.

Trends in the Dairy Industry

The ability of the northeastern dairy industry to adjust its production to anticipated needs or future prices is closely related to trends within the industry. Information on the number of cows and the annual milk production per cow is of particular significance.

During the early 1920's, the number of dairy cows in the Northeast was at a record high. The number declined from 1926 to 1929 but has since been steadily increasing at an average annual rate of approximately 30,000 cows. In many northeastern states, cow numbers for 1940 equal or exceed the 1925 level (appendix table 15).

4/ New York Dairy Farm Report for March 1939. New York State Department of Agriculture and Markets, Albany, N. Y.

For the Northeast Region, there has also been a long-time upward trend in milk production per cow. The average production per cow was 4980 pounds in 1925; in 1940 it was approximately 5360 (appendix table 15). There is considerable fluctuation around the long-time trend as production per cow is influenced by the prices of milk and of grain and by other factors. In Vermont and New York the annual production per cow has been increasing rather consistently; while in several of the other northeastern states, where production per cow was already on a high level, there appears to have been little change.

Under the influence of increasing cow numbers and increasing milk production per cow, total milk production in the Northeast has risen 12.5 percent above the 1925 level. The average annual increase since 1935 is roughly 345 million pounds or slightly less than 2 percent annually (appendix table 16). Vermont, New York, and Pennsylvania have experienced relatively larger increases than other states in the region.

There is some question as to the ability of the region to provide sufficient pasturage and other roughage if present cow numbers are increased materially. Census data indicate that total roughage acreage and tonnage have been decreasing over a long period of years. Much of this reduction has probably taken place in areas of declining agriculture where little dairying exists. Figures for 1939 and 1940 show that in some states in the region, this long-time trend may have stopped. Total production of all hay for the region in 1939 was 6 percent below and in 1940 was 12 percent above average production for the 1929-33 period.^{/5} It is felt that in areas of more commercial farms, both the quantity and quality of the roughages have been increased under the stimulation of adjustment and extension programs. Acreages of legumes for both hay and pasture have been increasing, particularly in New York and Pennsylvania. It is expected that the trend toward intensification of roughage production will continue. In Connecticut, a study has been made to estimate the effect of the Agricultural Conservation Program upon total roughage production.^{/6} It was estimated that the practices carried out under this program would result in 3 to 3.5 percent more total digestible nutrients in 1945 than in 1940. It is expected that, under normal weather conditions and with favorable price relationships, adequate supplies of roughage will be forthcoming to feed a larger number of dairy animals.

The replacement of dairy cows may be a very critical problem. At present, many of the cows used for replacement originate within the region. However, in a 12-month period in 1939 and 1940, about 27 percent of the cows that entered 10 northeastern states were obtained from the Lake States.^{/7} With a large expansion anticipated in the dairy industry of the North Central Region, it may be difficult to obtain replacements from this source. The problem is made less acute, however, by the large number of dairy heifers in the Northeast. As a result of an upward trend, the number of heifers of all ages in the region in 1940 was the highest on record. For the region as a whole, there was a ratio of 39 heifers to 100 cows in that year. This ratio has been practically constant during the last 4 years.

5/ General Crop Report: December 1940, Agricultural Marketing Service, U.S.D.A.

6/ The Effect of the Agricultural Conservation Program upon Dairy Farming in Connecticut. L. Jay Atkinson, Unpublished Report.

7/ Statistical Report on Interstate Movement of Dairy Cattle, 10 Northeastern States. L. M. Vaughan, U.S.D.A., March 1941.

Results from a survey in Connecticut indicate that farmers believe they have hay and pasture available for a large increase in cow numbers and that barn space is available for this increase without major alterations to present facilities./8 The survey also shows that with favorable price relationships farmers expect to add cows and feed more grain. In some instances an expansion in cow numbers would be made by replacing young stock, but, generally, it was felt that cows could be added to the present dairy enterprise.

Expected Production in 1943-45

The present situation of the dairy industry in the Northeast Region is such that, with the assumed favorable price relationships, a greater than normal expansion will probably take place in milk production during the 1943-45 period. In several states, cow numbers are already at an all-time high. It is estimated that in 1943-45 the number of dairy cows will be about 6.3 percent above the 1939 number. This would be an average annual increase of about 46,000 cows and would be the largest number of cows on record for the region.

Annual milk production per cow is also expected to increase. The 1943-45 estimate is 5,550 pounds per cow or 330 pounds above the 1939 average. With an increase in cow numbers it is more difficult to increase production per cow, since larger numbers of young and old cows are milked and culling of the herd is less severe. A larger increase in annual milk production is estimated for the present cow numbers, therefore, and the production of additional cows is estimated at the present level.

Total milk production in the Northeast Region is estimated to be 21,367,000,000 pounds in the 1943-45 period (table 3). This quantity is 12.9 percent above the 1939 production. Increases in annual milk production per cow are expected to bring about 55 percent of the increase, and the larger number of dairy cows will be responsible for the remainder. The estimated annual increase is considerably greater than the average annual increase since 1935. However, even this large increase may be too small in view of the estimated 1941 production which is 6.5 percent above the 1939 figure.

It is expected that much of this increase in production will take place in New York, Pennsylvania, and Vermont. In 1940, these three states accounted for about 70 percent of all cows in the region and produced 78 percent of the milk. In spite of large numbers of cows, these states have been increasing both production per cow and cow numbers faster than many of the other states. In 1940, there was also a ratio of approximately 4 heifers to every 10 cows in these 3 states. Therefore, the replacement problem may be less acute than in some of the other states where one-fourth to one-half of the replacements may have to be bought.

The estimated total increase in milk production for the region will be the cumulative result of adjustments made on individual farms. In making these individual adjustments, a dairy farmer may be faced with several alternative uses for his land, labor, capital, and ability as a manager. A favorable opportunity may be found in poultry, truck crops, potatoes, forestry, and other agricultural enterprises. Any decision to expand the dairy enterprise should be made with reference to these other opportunities.

Table 3. -- Production of milk on farms by states in the Northeast Region ¹

State	Actual production: 1939	Estimated production: 1941 ²	Expected production: 1943-45	Percentage increase 1943-45 over 1939	Percentage increase 1943-45 over 1941
	(Million pounds)			(Percent)	
Maine	652	698	730	12	5
New Hampshire	354	370	391	10	6
Vermont	1,392	1,549	1,623	17	5
Massachusetts	804	836	879	9	5
Rhode Island	145	150	158	9	5
Connecticut	720	725	763	6	5
New York	7,465	8,102	8,614	15	6
New Jersey	909	970	1,018	12	5
Pennsylvania	4,622	4,900	5,186	12	6
Delaware	143	152	159	11	5
Maryland	875	939	989	13	5
West Virginia	840	816	857	2	5
Northeast Region	18,921	20,207	21,367	12.9	5.7

¹/ Farm Production, Disposition, and Income from Milk 1924-1940, Agricultural Marketing Service.

²/ Preliminary estimates, Agricultural Marketing Service.

On less specialized dairy farms where slight increases in any or several of these alternatives can be made without making additional long-term commitments, the preferences of the operator and the relative chances for profit can be expected to influence his decision. In considering the relative income opportunities, a farmer should estimate the additional costs and returns that will be associated with each adjustment. The estimated additional costs and returns resulting from the addition of one cow on a New York dairy farm without additional labor or building expense is shown in table 4. This information should be compared with similar information on comparable units of other enterprises, as far as labor requirement or other limiting factors are concerned.

On specialized dairy farms, it may be most profitable, especially with a reduction in the amount or quality of the available labor, to devote fewer resources to any of the minor enterprises that may be in combination with milk production. Over a short period it would not usually be profitable for a specialized dairy farmer with a limited labor supply to decrease the dairy herd and expand other enterprises. This would be especially true in cases where long-term investments or commitments would have to be made.

"Desirable" Production in 1943-45

It has been indicated that, under the assumed price relationships, the expected milk production in the 1943-45 period is somewhat above the production that might come about if present trends should continue. What could production be in 1943-45 if an attempt were made to stimulate adjustments in line with the farmers "real" economic self-interest?

Under the assumed favorable ratio between milk and dairy grain prices, it would seem profitable for specialized dairy farms to increase still further the number of dairy cows and the production per cow. In fact, this might also be a desirable adjustment for less specialized dairy farms considering possible

Table 4. -- Estimated changes in costs and returns resulting from the addition of one cow on a New York dairy farm for the 1935-39 and 1943-45 periods /1

Item	1935-39		1943-45	
	Price	Amount	Price	Amount
Additional returns:	Dollars	Dollars	Dollars	Dollars
Milk-- 5,620 lbs. /2	1.87	105	2.55	143
Calf	3.00	3	5.00	5
Total		108		148
Additional costs:				
Grain-- 1 ton	35.00	35	47.00	47
Standing hay-- 3A. /3	4.00	12	6.00	18
Depreciation		15		25
Interest on investment in animal 25%		4		5
Miscellaneous		12		15
Total		78		110
Net return for labor and use of buildings and equipment		30		38

- 1/ It is assumed that the addition of one cow can be made without additional labor and building expenses. This would presuppose a short-time outlook.
- 2/ Average annual milk production per cow, New York 1939-40.
- 3/ It is assumed that roughage will be obtained locally, either by buying standing hay from neighbors or by heavier application of fertilizer on the operator's own fields. In either case, the costs would be approximately the same.

feed shortages in the poultry industry and labor shortage in the fruit and vegetable industry.

The expansion that could take place in the number of dairy cows is uncertain. The number of dairy heifers is now at an all-time high in the region, but the outlook for replacements which usually come from other regions is less promising. A plan that might alleviate this situation would be to give emphasis to different dairy replacement programs for different areas in the region. For farms nearest marketing centers, or in areas where several alternatives compete keenly for productive resources, it might be wise to divert a part of the resources used in raising replacements and stress milk production. On farms farther removed from marketing centers, or in locations where there are fewer alternatives open to the operator and his resources, it might be profitable actually to divert resources to the production of dairy replacements. These farms might obtain heifer calves that are now disposed of at an early age in areas of intensive milk production, raise these calves to maturity, and ultimately return them as milk cows to the area from which they came or to other areas where they are needed.

It seems possible that under the most favorable conditions and with the stimulation of active programs the number of dairy cows in 1943-45 might be 9 to 10 percent above the number in 1939. Apparently a large part of this increase could be handled without new buildings.

The potential increase in total quantity of milk that might result from increased production per cow is perhaps greater than that resulting from any increase in cow numbers. While dairy cows in the Northeast Region already receive more concentrate per head than do cows in many other regions, it has been shown that when any large number of cows is considered, average production per cow could be increased materially by increasing the quantity of concentrate fed.⁹ On an experimental basis, the production of some cows was profitably increased as much as 25 percent by feeding more grain. For the larger number of cows and the variety of production situations found in the region, it is doubtful whether more than a part of such an increase could be realized. Under optimum circumstances, an increase of about 10 percent in the production per cow over that of 1939 is about the most it seems reasonable to expect.

The cumulative effect of increased cow numbers and increased production per cow would give an increase in total milk produced of about 18 to 20 percent over the 1939 amount. This would be possible only under favorable weather and price situations and with programs to stimulate production.

The following recommendations are made as measures that might lead to increased production without overtaxing the milk production plant, i.e., the operator, land, herd, buildings, and equipment.

Farmer adjustments

- (1) Farmers should try to bring about a closer adjustment between feed inputs and milk outputs and, under the assumed 1943-45 prices for milk and grain, should increase grain feeding in many instances. Although there is considerable margin around the optimum point of feed input, and underfeeding or overfeeding can be done without too great penalties, it might be worthwhile for farmers to feed each cow on an individual basis by trying to balance the value of the last pound of milk produced against the cost of the last pound of grain consumed. It is difficult to get perfect adjustment between feed inputs and milk outputs. But with more supervision of grain feeding on the part of the operator and with assistance from agencies, such as the Extension Service, it might be possible to approximate the optimum adjustment.
- (2) Although less effective than the adjustment above, total milk production might be increased without materially changing feed inputs per cow. On many dairy farms, cows are relatively underfed during the first part of lactation and relatively overfed during the last part. A simple transfer of grain usually fed when the cow has fallen off in production to the period when the cow is in the flush of production will usually increase total milk production.

9/ Determining Input-Output Relationships in Milk Production, Preliminary Results, Einar Jensen, U.S.D.A., January 1940.

- (3) Under certain price relationships, operators might find it profitable to overfeed the herd at all times. Overfeeding may tend to lower the resistance of the herd and shorten the period of its productiveness. This process might not be too far out of line with the long-term adjustments for the area. Maximum production would be obtained in the shorter period; and if, after a few years, the herd could be replaced by a young herd, the operator might be in a better economic position from the long-time viewpoint.
- (4) Proper care and feeding of the dry cow can add materially to the production in the following lactation period. This phase of feeding for milk production is often overlooked by dairymen. While overfeeding may occur in the latter part of the lactation period, a cow is frequently poorly cared for once lactation has ceased. A period of at least 8 weeks should occur between each lactation period. During this period the cow should receive enough feed to be in a healthy, vigorous condition.
- (5) On dairy farms where the labor problem is less acute, total milk production can be increased by increasing the number of milkings. It is generally estimated that a cow milked three times daily during most of the lactation period will produce 20 to 30 percent more milk than when milked twice each day. Such an adjustment will usually call for increased feeding and is best adapted to high-producing cows.
- (6) The health of dairy herds could be improved or safeguarded in several respects. Such methods as vaccinating, testing, and segregating and sometimes even disposing of certain dairy animals could be expected to improve the general health and probably increase total milk production.
- (7) It is probable that there are opportunities to increase milk production by further shifts to fall freshening.

Program adjustments

- (1) Recent input-output research in feeding dairy cows shows that on most farms production per cow can be increased 20 to 25 percent through increased grain feeding. If relative prices of milk and grain are favorable, this more intensive feeding will be profitable. However, studies of dairy farmers' responses to price changes show that habitual rates of grain feeding usually change within rather narrow limits. Only after the lapse of several years can one usually expect adjustment of the magnitude needed now. Some means are needed, therefore, for getting concentrate feeds into the Northeast upon a larger scale than ever before at prices that will not only permit profitable feeding

but will furnish a special incentive. The recent sharp price advances in by-product millfeeds have directed attention to a number of suggestions for utilizing surplus wheat for livestock feed. One of these is that surplus and low-grade wheat be colored or otherwise marked and released for feeding to livestock at a lower feed price. Perhaps the Nation should consider the advantages of a permanent domestic two-price system for wheat. Still another suggestion calls for reduced freight rates on feed moving into special emergency feeding areas as has frequently been done in drought emergencies. The reduction in roughage supplies from the persistent drought of the current season in the Northeast may call for such consideration.

- (2) The present feed storage plan which the Commodity Credit Corporation is operating on a limited scale in conjunction with farmers' purchasing cooperatives in the Northeast, needs to be considerably expanded as an important supplementary aid to obtaining adequate feed supplies.
- (3) The Agricultural Conservation Program could emphasize still more the production of roughage for both hay and pasture. Adopting practices to stimulate the planting of new or improved crop varieties that have proved to be adapted to certain areas would possibly increase the amount of roughage in the region. Such a program would be particularly important on farms where present roughage supplies are insufficient. Other farms might be able to feed roughage of relatively higher quality and either obtain more milk or maintain milk production with reduced grain feeding. As a result of an intensive program of this nature, the region would be in a better competitive position to meet problems of the post-defense period.
- (4) Tenant farmers comprise a considerable number of all farmers in certain areas of the region. The present form of leasing agreement in certain areas of Pennsylvania, Delaware, and Maryland tends to discourage any increase in cow numbers. Steps could be taken by various agencies such as the Extension Service to assist in adjusting present leasing systems. Such adjustments would be to the economic interest of both tenant and landlord.

Long-Term Adjustments and Problems

Beyond any immediate or short-time period, are the long-term adjustments and problems facing dairymen in the Northeast Region. Consideration of this period may be of secondary interest to farmers, but present adjustments may limit the future alternative open to them. Fundamentally, there is little conflict between the short-term and long-term adjustments for the region, but some possibilities should be evaluated.

In certain parts of the Northeast, there may be an increased demand for land to be diverted to recreational uses. In other parts, land of low productivity may be abandoned and ultimately enter into forest uses. Over any long-time period, however, the comparative advantage for a large part of the Northeast apparently lies in dairy farming. This may also be true for other regions where dairying is now found chiefly in combination with other enterprises. Less favorable opportunities in the production of grains, beef, and pork may make it profitable for certain western regions to divert more and more resources into milk production. At present, the problem of transporting milk from there to the East might be a bottleneck, but it is conceivable that this problem can be met.

Eastern dairymen might be subjected, therefore, to strong competition on one hand and faced with no very good production alternative on the other. To meet this situation, the northeastern dairy farmer should be prepared to produce milk very efficiently. To do this an attempt should be made to have the dairy herd composed of young, healthy, high-producing animals; barns and equipment should be adequate and in good repair, fields and pastures in a state of high productivity. Farmers might take advantage of the returns during the short-term to accomplish these adjustments as well as to retire any outstanding debts.

This program toward increased efficiency would call for several different types of adjustments. On some farms in an over-expanded situation, the program might call for contraction all along the line. At present, some farmers believe that competition can be met only by increasing the number of cows or acres under their control. As a result, unprofitable cows are being kept at the expense of other cows. It is conceivable that in such cases net returns and possibly total milk production could be increased by giving better care and the same total quantity of feed to a smaller number of cows. In many instances, the same quantity of roughage might be produced at lower cost if fewer acres were handled more intensively. On other farms, the program would call for an expansion of the enterprise. In this way, the factors of production would be more completely utilized and certain economies of scale would be realized.

Many dairymen could also take advantage of their location to perform the distribution function. This might be accomplished through farmer cooperatives or direct marketing by the farmer himself. One of the most serious bottlenecks in the retail distribution of milk by producers has been the problem of pasteurization. This problem has been met and satisfactorily solved in some instances by cooperative pasteurizing plants,

EGG PRODUCTION

Production Situation

Flocks: According to the 1930 census, approximately 70 percent of all birds on farms in the Northeast were in flocks of 50 to 700 birds (table 5). Many of these flocks were supplementary enterprises on dairy or general farms. Others represented part-time employment for operators who worked off the farm or had no other employment. Sixteen percent of the

Table 5. -- Percentages of chickens over 3 months old on farms, in flocks of various sizes, by states in Northeast Region, April 1, 1930.

State	Percentage in flocks				
	Under 50	50 - 199	200 - 699	700 & more	
Maine	32.2	33.5	23.8	10.5	
New Hampshire	17.0	25.7	31.6	25.7	
Vermont	44.0	34.2	16.6	5.1	
Massachusetts	11.9	24.8	35.2	28.0	
Rhode Island	9.6	28.9	33.3	28.1	
Connecticut	11.7	24.7	34.0	29.5	
New York	14.3	39.1	30.6	16.0	
New Jersey	4.2	18.4	35.0	42.4	
Pennsylvania	10.6	46.4	33.0	9.9	
Delaware	3.6	30.4	35.6	30.4	
Maryland	10.6	47.3	30.2	11.9	
West Virginia	35.1	53.6	8.8	2.5	
Northeast Region	14.0	39.5	30.2	16.3	
<u>1/ 1930 Census of Agriculture</u>					

birds were in flocks of 700 or more. Most of these flocks were on specialized commercial poultry farms. Fourteen percent of the birds were in backyard flocks (less than 50 birds). The census report by types-of-farming shows that farms having poultry as the major enterprise produced 38 percent of the eggs and had 32 percent of the chickens on farms in the Northeast Region (table 6).

The Agricultural Marketing Service has estimated that the number of chickens held in non-farm flocks in the North Atlantic States is almost 15 percent as many as are held in farm flocks, and that the relative production of eggs is in about the same proportion.^{/10}

Price relationships: As more than half the cost of producing eggs in the Northeast is feed cost, the relation between feed price and egg price is extremely important in determining returns from egg production. In estimating production for the 1943-45 period, it has been assumed that egg prices for the country as a whole will be about 60 percent above the 1935-39 average. An equivalent increase in absolute rather than relative terms is probable for the Northeast.^{/11} This would mean an increase of 12 cents, or 45 percent, over the 5-year average price of 27 cents a dozen. With even a 30- to 40-percent increase in feed prices, a favorable feed-egg ratio would result. Returns would be even more favorable, since not all costs are likely to rise in proportion to feed costs. Wages of hired labor are expected to be about 50 percent higher, but the costs of miscellaneous supplies and services are not expected to rise more than 20 percent.

^{10/} Farm Production and Disposition--Chickens and Eggs -- 1925-37, p. 2, Agricultural Marketing Service.

^{11/} During April, May, June, and July, 1941 when the price-support program has been operative, the United States farm price of eggs has averaged 6.9 cents a dozen higher than for the same months in 1940; while for certain regions the increase was as follows: New England, 6.5 cents; Middle Atlantic, 6.3 cents; East North Central, 7.1 cents; West North Central, 7.6 cents.

Table 6. -- Numbers of chickens and egg production on poultry farms and other farms in the Northeast, 1930 /1

State	Farms with		Chickens over 3 mo.		Eggs produced	
	chickens		old on farms 4/1/30:		in 1929	
	Poultry:	Other	Poultry:	Other	Poultry:	Other
	farms /2:	farms	farms /2:	farms	farms /2:	farms
	(Number)		(Thousands)		(Thousand dozens)	
Maine	2,031	25,311	485	966	5,361	8,376
New Hampshire	1,558	8,893	508	406	5,314	3,222
Vermont	442	18,235	110	640	1,170	5,510
Massachusetts	3,255	14,823	1,088	837	11,354	6,749
Rhode Island	455	2,129	138	167	1,269	1,200
Connecticut	2,023	11,749	782	755	7,918	5,659
<hr/>						
New York	9,280	123,806	3,570	8,384	35,621	62,305
New Jersey	4,786	15,843	2,614	1,483	25,631	10,325
Pennsylvania	11,857	145,014	3,652	11,794	36,019	83,605
<hr/>						
Delaware	1,965	6,965	845	706	6,196	5,004
Maryland	2,911	36,737	941	2,836	8,886	18,824
West Virginia	1,672	73,759	315	3,359	3,236	24,694
<hr/>						
New England	9,764	81,140	3,111	3,771	32,386	30,716
Middle Atlantic	25,923	284,663	9,836	21,661	97,271	156,235
Delaware, Maryland, West Virginia	6,548	117,461	2,101	6,901	18,318	48,522
<hr/>						
Northeast	42,235	483,264	15,048	32,333	147,975	235,473

1/ 1930 Census of Agriculture--Types of Farming.

2/ Poultry farms include those with over 40 percent of receipts from poultry.
(Farms with agricultural production not over \$750 and where the operator spent 150 days or more in off-farm work were classified as part-time farms.)

Labor: The poultry enterprise, except on specialized poultry farms, can be carried on to a large extent with labor provided by part-time family workers who would not ordinarily do other kinds of farm work. In the face of a relative shortage of farm labor, the extent to which the farmer's wife will increase her duties by assuming responsibility for the poultry, or the extent to which a slightly more favorable outlook will encourage her to devote more effort to the poultry already under her control, will have an important effect on egg production. This applies particularly to the supplementary farm flocks, but it also applies to part-time enterprises of operators who are finding full-time work through the defense program.

Housing: Little information is available concerning the amount of effective excess housing capacity in the Northeast. Undoubtedly there are a great many abandoned poultry houses, but it is questionable whether many of these are in such condition and so located that they would be used again. On going poultry farms it should be possible to house 10 percent more birds than in 1939, and by changing management practices, the average number of birds kept during the year might be increased another 10 percent. At present, the average number of birds kept during the year ordinarily varies between 60 and 80 percent of the birds housed. An increase in the number of birds housed would be relatively easier for the supplementary farm flocks, while increasing the ratio between the average number of birds kept and the number of birds housed might be easier for the specialized farms.

Beyond the limits indicated above, any increase in the number of birds kept would probably require increased housing. Such an increase would be relatively simpler than an increase in dairy barn capacity. Rather efficient poultry houses can be built in considerable variety of design, in fairly small units, and by relatively unspecialized labor. It is also easier to fill new poultry houses than dairy barns, since a very considerable increase in pullets raised can be made within a year, while any general increase in heifers must be anticipated 2 or 3 years in advance.

Trends in Egg Production

Since 1925 there has been a considerable increase in egg production in the Northeast amounting to about 2 percent annually (appendix table 17). In Massachusetts the increase has averaged over 6 percent annually, whereas in Maryland there has been an actual decrease. During the period, the number of hens and pullets on farms January 1 has increased only slightly (appendix table 18). As there has been a tendency to house birds earlier, the average number of birds kept during the year may have increased more than the January 1 number. It is also probable that changes in culling, mortality, etc., have affected this relationship. There is rather general agreement, however, that there has been a considerable increase in egg production per layer during the last 15 years (appendix table 18).

Expected Production in 1943-45

The assumed price relationships for the 1943-45 period indicate a favorable situation for egg producers as compared with recent years. It is doubtful, however, whether the situation will be much more favorable than that already realized in the 4 months (April-July, 1941) when the present

price-support program was effective. Compared with normal seasonal trends, egg prices have been materially higher in these 4 months than previously, while increases in grain and other costs have been only moderate.

The number of pullets not yet of laying age on August 1, 1941, available for later addition to laying flocks, was 23 percent larger than a year previous in the North Atlantic States.¹² Thus it seems certain that the number of hens and pullets on hand January 1, 1942 will be at least 8 percent above the number on January 1, 1939.

How much larger are poultry flocks and egg production likely to be in the 1943-45 period? Egg production will depend to a considerable extent upon how well informed poultrymen are of the probable costs, prices, and returns which can be expected. Continuation of present favorable price relationships through 1942 will serve psychologically to reassure poultrymen and encourage them to maintain or increase production in the following period. On the basis of normal farmer-responses to the assumed price relationships, it is estimated that northeastern egg production in 1943-45 will be about 15 percent above 1939 (table 7). The increase in eggs marketed is not likely to differ significantly from the increase in production, although more eggs may be used for the production of broiler chicks.

The increase of 15 percent for the region will be the net result of a variety of changes in the different production situations. Many part-time flocks have already been abandoned when their operators accepted new work resulting from the defense program. A decrease in the number of small backyard flocks kept for home use is also probable.

With shifting in hired labor on dairy and general farms, the replacement of a given number of man-hours may not be sufficient to maintain production, particularly in secondary enterprises, since the operator will probably have more management duties to perform than formerly. Therefore, some supplementary poultry enterprises will be dropped. On a dairy-poultry farm, however, where a labor shortage necessitates contraction in one enterprise, it is believed that for a given expenditure of labor, poultry can compete favorably with dairy under the assumed price relationships. This would also be true for expansion when housing is available for both dairy and poultry (table 8).

On the other hand, both supplementary and part-time enterprises will be taken over in some cases by members of the operators' families. In Connecticut, some buildings formerly used to house commercial broilers are now used for layers. It is also possible that shortages of materials coming as a secondary phase of the defense program may cause unemployment among persons now working in the production and merchandising of consumer goods. Some of these people may man poultry farms, either as laborers, part-time operators, or full-time operators.

Therefore, as a result of flocks dropped, a reduction of not more than 3 to 5 percent in number of birds is estimated. Other farmers will

^{12/} Poultry and Egg Situation, p. 7, August, 1941.

Table 7.- Production of eggs on farms in Northeast Region, by states

State	: Actual : Estimated: Expected : Percentage increase					
	:production:		:production:		:1943-45 over:	
	: 1939 ^{1/}	: 1941 ^{2/}	: 1943-45	:	1939	: 1941
	(Millions)					
Maine	: 240	: 271	: 285	:	19	: 5
New Hampshire	: 191	: 176	: 205	:	7	: 16
Vermont	: 117	: 131	: 138	:	18	: 5
Massachusetts	: 405	: 454	: 479	:	18	: 6
Rhode Island	: 45	: 56	: 57	:	27	: 2
Connecticut	: 321	: 369	: 384	:	20	: 4
New York	: 1,703	: 1,868	: 1,991	:	17	: 7
New Jersey	: 690	: 721	: 787	:	14	: 9
Pennsylvania	: 2,063	: 2,148	: 2,350	:	14	: 9
Delaware	: 111	: 120	: 129	:	16	: 8
Maryland	: 345	: 344	: 386	:	12	: 12
West Virginia	: 422	: 401	: 460	:	9	: 15
Northeast Region	: 6,653	: 7,059	: 7,651	:	15	: 8

1/ Farm Production, Farm Disposition, and Income--Chickens and Eggs, 1939-40, Agricultural Marketing Service.

2/ Preliminary estimates, Agricultural Marketing Service.

increase their flocks enough so that with practically no new flocks or new housing, a new increase of 12 to 15 percent in the average number of birds kept can be expected.

The flocks dropped will be of less than average production per hen. Improved feeding and management practices will be adopted to some extent for both specialized and supplementary flocks. These factors will be offset by the tendency to lower production where flocks are expanded. The long-time trend toward increased production per bird can be expected to continue about unchanged, resulting in at least a 2-to 3-percent increase in production.

The estimated 15-percent increase over 1939 is a fairly safe minimum estimate under the stated assumptions since it is based on practically no increase in housing. Price relationships may be sufficiently favorable to encourage specialized poultrymen to add some new houses. Building costs will be high and the investment in new housing will involve considerable risk. Even more risky would be investment in new housing by people with no experience in poultry who do not fit into the industrial picture and who think they see a favorable time to attain security on a poultry farm. If in the near future shortages of materials cause much unemployment among industrial workers who produce or distribute consumers' goods, such investment may occur.

There seems little reason to expect the proportional increase in egg production to vary among the 12 states in the region. Certain factors are of varying importance in the different states; but to a considerable extent they are compensating, and the same net result can be expected. Preliminary estimates of 1941 egg production, however, indicate decided differences in the changes made to date. Except for New Hampshire, the states which have made the largest increase to date are those which have

Table 8. -- Comparison of estimated changes in costs and returns from adding 125 layers or 2 cows on a New York dairy-poultry farm in the 1935-39 and 1943-45 periods /1

Item	1935-39		1943-45	
	Price	Amount	Price	Amount
A. Adding 125 layers:	Dollars	Dollars	Dollars	Dollars
<u>Receipts:</u>				
Eggs-- 950 doz.	0.27	256	0.39	370
Fowl-- 500 lbs.)	.18	158	.29	254
Broilers--375 lbs.)				
Total		414		624
<u>Expenses:</u>				
Chicks-- 300	.10	30	.13	39
Feed-- 144 cwt.	1.90	274	2.60	374
Coal-- 1 ton	10.00	10	12.00	12
Litter		15		20
Interest on additional livestock investment		5		6
Miscellaneous		20		30
Total		354		481
Net returns for labor and use of buildings and equipment		60		143
<u>B. Adding 2 cows:</u>				
(see table 4)				
Net returns for labor and use of buildings and equipment		60		76

1/ It is assumed that the additional labor involved in the two alternatives is about the same, that additional buildings and equipment for either hens or cows are available, and that the operator has no special individual preference between the two enterprises.

relatively more specialized poultry farms. On the other hand, it is felt that the states which have the greatest opportunity to increase number of birds with available buildings and labor are those where supplementary flocks are most important. These states also have the greatest opportunity to increase production per bird. In computing the expected production for 1943-45 in the various states, equal weight has been given to the state productions which would result (1) if each state increased 15 percent over 1939, and (2) if the 15-percent increase for the region were attained by proportional increases over 1941 production in all states.

"Desirable" Production in 1943-45

If poultrymen were to make adjustments as nearly in line with their "real" economic self-interest in the 1943-45 period as possible without causing serious conflicts with desirable long-time adjustments, what level of production could be attained? In other words what would "desirable" production be?

Under the assumed price relationships, it would seem to be profitable for most specialized poultrymen and other farm operators having poultry flocks to house enough birds to fill available buildings. There is little to indicate how much of an increase this would be, but it has been tentatively estimated at 10 percent over 1939. An additional 5- to 10-percent increase in the average number of birds kept might be accomplished by use of the "barracks system" and laying shelters, by raising out-of-season pullets to keep laying houses filled throughout the year, or by less rigid culling. It has been indicated that the long-time trend in production per bird is expected to continue, with a resulting increase in total production of 2 or 3 percent over 1939. How much this could profitably be speeded up is uncertain. Particularly for the supplementary flocks it might be profitable to increase production considerably by purchasing better stock and devoting more attention to management practices. For the area as a whole, an increase of 10 percent in production per bird might be possible, but it would be difficult to obtain. Combining all factors, it seems entirely possible that, under the assumed price relationships, north-eastern egg producers could profitably increase their production 25 percent over 1939 without making any considerable investment in new buildings.

Farmer adjustments: The adjustments that may be profitable for farmers to adopt will naturally vary with the diverse situations as to available resources and organization. Some of the adjustments which, by and large, are likely to be profitable are listed below. Most of these have been recommended under normal conditions; the difference is only in the extent to which they may be adopted.

- (1) The number of birds housed in supplementary farm flocks should, in general, be increased to the limit of available housing. More pullets should be raised so that it will not be necessary to keep old hens to fill houses. The extent to which these practices are adopted will depend upon the effort which the farmer's wife and children are willing to put forth. With higher returns, they can be expected to be willing to devote more time to poultry.

- (2) Operators of specialized poultry farms should not only house the maximum number of pullets, but should also keep them filled throughout the year.

The "barracks system" as used on some farms is one method of doing this. As soon as the brooding season is over and the last of the pullets have been transferred to the range (July), permanent brooder houses are filled with early-hatched pullets. When the space is needed for brooding again (January), enough culling is done so that the remaining birds can be transferred to the laying house.

Another method is the use of inexpensive laying shelters. Units similar to range shelters, but larger and fitted with nests, are used to house yearling hens which would ordinarily be culled in the summer to make room for moving pullets to the laying house. Through use of these shelters the hens can be kept until early winter.

In some cases it may be desirable to start a brood of chicks in the fall to replace layers which die or are culled during the winter. If no other method is used to keep houses full to capacity, less culling may be profitable.

- (3) A recent study has indicated the possibility of a 6-months' poultry enterprise on some of the truck farms in the Northeast.¹³ Where such enterprises do not involve too much investment, they should be adopted. If pullets are to be bought, plans for obtaining them should be made well ahead of time.
- (4) Returns from many poultry flocks, particularly on general farms, could be increased if more effort and money were expended in obtaining more livable and productive stock. With high-quality chicks available from breeders and hatcheries, it probably will not be profitable for many farmers to hatch their own chicks.
- (5) Returns could likewise be increased in many cases through the use of management practices aimed at increasing production per bird. In the Northeast, the difference between the cash costs associated with high and low egg production per bird is usually slight. A 200-egg pullet eats little more than a 100-egg pullet. With birds of equal inherent ability, a large difference in production is frequently associated with the difference in attention given by the operator to minor details--regular feeding; a plentiful supply of water, warmed in the winter; improved disease and pest control; etc.

Agricultural programs: These adjustments suggest the steps which should be taken by action and educational agencies to insure that the expected production will actually be reached in 1943-45 and the maximum profitable level

^{13/} Urquhart, N. R., and Creek, Charles R., Farm Management Problems and Adjustments on Vegetable Farms in Bristol County, Mass., United States Department of Agriculture, 1941

approached as nearly as possible. In addition to advising farmers of profitable adjustments, the following action is needed:

- (1) Practically all the poultry feed used in New England, and a large part of that used in the rest of the region, is imported from other regions. It is estimated that in 1940 about 700,000 tons of poultry feed were imported into New England alone. A relatively short delay in feed transportation would cause serious liquidation of laying flocks. Therefore a program to encourage storage of reserve feed is especially important to the northeastern poultry industry.

If farm storage is to be encouraged it should be kept in mind that good facilities are limited on many poultry farms. Losses of feed and damage to bags by rats may be serious, unless extensive control measures are taken. Deterioration of poultry mashes containing corn meal may prevent storage for more than 6 weeks, and the Vitamin D potency of mashes may suffer. Perhaps effort should be concentrated on obtaining storage of scratch grains rather than mashes on poultry farms. It should be pointed out that if any economies in transportation or milling would result, poultrymen could rather easily buy unmixed whole grains instead of grains cracked and mixed for scratch feed.

- (2) The supplies and equipment needed by poultrymen include disinfectants, litter, egg cases, feeders, waterers, nests, and fencing. Substitutes should be suggested where a shortage is imminent. For example, home-made wooden feeders can be used in place of purchased metal ones.
- (3) It has already been indicated that much of the labor and management for any increased egg production on general farms is likely to come from members of the operators' families. Special emphasis should be laid on such programs as 4H poultry projects. This might also be one of the most effective ways of getting parts of the educational program across. Poultry clubs for farm women might have a place, particularly in the general farming areas.

Long-Term Adjustments and Problems

The northeastern egg producer is faced with the extremely important question of what his competitive position will be in the post-war period. This problem faces most agricultural producers in the Northeast, but it is particularly acute for poultrymen. Specialized, wholesale egg enterprises have been developed in the Northeast largely in response to a considerable premium for high-quality eggs. High-quality eggs have been local eggs, partly because of the difficulties of maintaining quality in transporting eggs from the Midwest, and partly because midwestern farmers have believed they had better alternative outlets for their efforts than in the production of high-quality eggs. High egg prices in combination with low feed prices following World War I have developed poultrymen and a poultry plant with an output which has constantly increased as knowledge, skills, and techniques have progressed.

Recent developments make it technically possible for other areas to ship high-quality eggs into eastern markets. This has been conclusively demonstrated by the cooperative marketing organizations of west coast producers. As feed accounts for more than one-half of all costs of producing eggs, the grain-producing areas have one inherent advantage in egg production. It is questionable whether the northeastern egg producer would be in business now if he had not developed greater physical efficiency (measured in such terms as eggs per hundred pounds of feed) to offset the advantage other areas have through lower grain prices and the utilization of waste feeds. Should less favorable production alternatives in other areas encourage greater production of high-quality eggs, the northeastern poultryman would realize the tremendous disadvantage of trying to ship 4 or 5 pounds of grain instead of 1 pound of eggs. With reduced export markets, it seems probable that the Midwest will pay more attention to the poultry enterprise.

From the long-time point of view, what is the economic basis for the location of a specialized wholesale egg enterprise in the Northeast? Unlike other agricultural enterprises, the poultry industry is largely independent of the soil; possibly there may be some relation between soil-type and the incidence of disease. Climate does affect poultry, and it is possible that the hot, dry climate of the Midwest is an obstacle to some types of poultry production there. Poultry buildings, on the other hand, are relatively easy to build, and the investment in northeastern poultry plants would not delay a locational shift for long. Perhaps the skills and techniques of northeastern poultrymen represent their greatest advantage, but these could be appropriated and developed by others in the course of a few years. Specialized wholesale poultry farms do not account for more than one-third of northeastern egg production, but they are important. It would seem that the problem of interregional competition in poultry production should be studied seriously.

This means that if the northeastern poultry industry is to maintain its importance, it should face the problem squarely and exploit to the utmost the advantages which it has. Some of the points to consider in a long-time program are the following:

- (1) Located close to the consuming centers of the country, it has the opportunity in many cases to perform the distribution function economically through direct marketing. This is not to recommend, however, that a program of advertising local eggs plus discriminatory legislation should be adopted.
- (2) With its superior strains of birds and background of breeding experience, it should be able to supply an increasing proportion of the hatching eggs and baby chicks used by poultrymen in other areas. A marketing problem requiring cooperative action may be involved in making stock of known quality available to distant producers in other areas.
- (3) Efforts to increase efficiency should be redoubled. (In economic terms, this means shifting the cost curve downward and to the right.) Under long-time conditions, moreover, it probably will not pay to incur as great cash costs to increase production rates as would be profitable in the 1943-45 period.

- (4) The development of methods for reducing losses from mortality is a subject on which research is urgently needed. Another important problem is the question of how much use can be made of roughage, such as range seeded to ladino clover mixtures, in the poultry ration.
- (5) Too few birds per man is the problem on many poultry farms. In many cases, flocks could be increased through better planning with little extra work or additional investment.
- (6) A special problem requiring the attention of educational agencies is that of prospective poultrymen. It has always been easy to get into, or out of, the poultry business. Many persons unacquainted with poultry or other farming have invested their life savings in the poultry business and then have failed in the course of a few years. This entrance of beginners is particularly likely to happen when egg prices are high or industrial opportunities scarce. Such unfortunate investments should be anticipated and discouraged.

Under the most favorable circumstances, such a program would enable the industry to continue to expand and prosper. Under less favorable circumstances of a post-war depression and intensified interregional competition, the industry probably could continue on a slightly reduced scale. But if poultrymen do not make serious efforts to consolidate their position, they may find post-war conditions a serious threat to their economic existence.

POULTRY MEAT PRODUCTION

The 5 important types of poultry meat are the following:

- (1) Fowl--birds culled from the laying flock
- (2) Broilers and roasters--young males and cull pullets grown as a by-product of providing replacement pullets on egg farms
- (3) Commercial broilers--cockerels and pullets produced commercially for broilers, usually at a different season than by-product broilers, and frequently on specialized broiler farms
- (4) Turkeys
- (5) Ducks

The production of the first two types of meat is closely related to egg production, but the latter 3 types are largely independent.

Trends in Poultry Meat Production

The trend in the quantity of chicken meat production as reported by the Agricultural Marketing Service is indicated in appendix table 19. However, it is stated that these estimates include only a fraction of the increase in commercial broiler production which has taken place in the last 5 years. A survey conducted for the season of 1934-35 indicated that the commercial production of broilers for the United States was approximately 16.5 million birds./14 Production in 1941 is expected to exceed 150 million birds./15

14/ An Economic Survey of the Commercial Broiler Industry, p. 10, U. S. Dept. of Agriculture, 1936.

15/ Poultry and Egg Situation, Agricultural Marketing Service, August 1941.

Of these, about 60 million will come from the Del-Mar-Va Peninsula. In addition, Eastern Connecticut and various other areas are important production centers.

Turkey production has also increased considerably in the Northeast in the last 10 years (appendix table 19).

Available statistics are not complete or reliable enough to give a clear picture of the trend in total production of poultry meat of all kinds. However, it is thought that 1941 production in the Northeast may be nearly the same as 1939 production.

Expected Production in 1943-45

The increase in fowl and byproduct broilers and roasters for the 1943-45 period will probably be slightly less than the increase in egg production. The broilers and roasters may be marketed somewhat earlier because of the labor situation, and hens will be kept longer, with more mortality. Also part of the increase in egg production will be due to higher production per bird rather than to more birds.

The rapid increase in commercial broiler production has probably been largely due to the financing and encouragement offered producers by such agencies as grain companies, hatcheries, and poultry dealers. As long as these agencies continue to finance and encourage broiler production, output is likely to increase rapidly. Production from present houses could be increased by keeping them full a larger part of the year, and new houses are relatively easy to build. On the other hand, it is reported that some commercial broiler producers are using their houses for layers this year.

The assumed increase in the United States farm price of chickens per pound is from 15 cents (1935-39 average) to 26 cents (1943-45 average), or over 70 percent. If the increase in northeastern broiler prices were to parallel this increase, it is difficult to estimate where production would stop. Actually, the increase in the northeastern chicken prices is more likely to be equivalent in absolute rather than relative terms. Moreover, with the increase in production of commercial broilers, it is probable that broiler prices will not rise so much as prices of all chickens. Even so, an increase of 25 to 50 percent over 1939 seems probable. What commercial broiler production was in 1939 and what relation it had to total poultry meat production is uncertain. Probably it accounted for about 30 percent. With a continued increase in turkey production, therefore, it seems likely that the total production of poultry meat will be substantially higher in 1943-45 than in 1939. Without sufficient information to provide a sound basis for estimating, the increase can be set at between 15 and 30 percent (probably 20 percent).

"Desirable" Production in 1943-45

If egg producers are to increase egg production as much as possible, they can do little to increase meat production more than proportionately. In some cases, the choice of methods of increasing egg production may have some effect on meat produced. For example, a poultryman who has formerly housed pullets once a year and followed a normal culling procedure may

increase egg production by doing less culling, or by raising out-of-season pullets to refill the laying house in the spring. If he does less culling, the ratio of meat sold will be lower because of higher mortality, while if he raises extra pullets, he will be producing more meat in relation to eggs.

On the other hand, commercial broiler producers can be expected to respond readily to the favorable price relationships. To assure that their production is in line with their "real" economic self-interest, it may be necessary to discourage, rather than encourage, them. It is doubtful, therefore, whether much increase in poultry meat production above the level of normal farmer adjustments could be obtained without increased housing. With the assumed prices, the chief problem in getting the expected increase is that of procuring feed and other supplies; this requires planning and action by public agencies. In addition, unwise investment in the broiler industry should be discouraged.

Long-Term Problems and Adjustments

In poultry meat production, the most important long-term question is what can be expected for the future of the commercial broiler business. Can the plants, which have been expanded so rapidly in the last 15 years, be operated economically, and can further expansion take place? For want of an exact picture of how the broiler industry operates at present and how the demand for broilers is likely to change in the near future, there is considerable skepticism about the probable returns from the industry. It is well known that credit extended by grain dealers, poultry dealers, and hatcheries has played an extremely important part in the broiler industry. Whether this credit has encouraged production beyond economical limits is a serious question. In addition, the problem of interregional competition is much the same for broiler production as for egg production.

VEGETABLE AND FRUIT PRODUCTION

A strong demand for vegetables and some fruits is expected during the next few years. The National Defense Program, leading to increased consumer purchasing power and greater food needs for the army; the Lend-Lease Act, increasing exports of canned and processed products; and the changing food habits of an increasing population--all contribute to this favorable demand situation. Prices of many fruits and vegetables are expected to increase. Production will be dependent upon the price-cost ratio and upon the ability of producers to adjust to changing conditions brought about by increasing emphasis on national defense, and upon weather conditions.

Production Situation

Vegetables: Vegetable acreage in the Northeast increased steadily during the last few decades. This follows the United States trend although the rate of increase was somewhat less than in the newer producing areas of the South and West.

In some recent years returns from vegetables and truck crops have been rather discouraging in the Northeast. A declining level of farm prices was not accompanied by proportional declines in production expenses. Some increase in competition from other regions has contributed to the problems of northeastern vegetable growers.

Commercial vegetable production in the Northeast can be divided into three distinct types: (1) vegetables for processing /16/; (2) vegetables for fresh market shipment /17/; and (3) market garden production. Considerable quantities of vegetables and fruits are also produced in farm gardens for home use.

Processing crops, which comprise about 40 percent of total vegetable acreage, have followed the general trend for all vegetables (appendix table 20). Production is centered mainly in the southern and central parts of the region except for Maine, which grows much sweet corn. Pennsylvania has increased in importance each year, its 1940 acreage being more than double the 1928-32 average. It is expected that Pennsylvania will continue to increase its acreage of processing crops, particularly in the next few years.

Vegetables for fresh market shipment and market gardens each comprise about 30 percent of total vegetable acreage. Acreage of fresh vegetables for shipment has increased steadily each year (appendix table 20). This has taken place in all states that have important shipping areas, except Massachusetts. Largest acreage increases have occurred in New York and New Jersey followed by Maryland, Pennsylvania, and Delaware.

Market garden acreage, estimated at approximately 275,000 acres for 1939, is concentrated on specialized farms around large population centers. Fresh market production is found in fairly well-defined producing areas of specialized vegetable farms while many processing crops are grown on diversified farms in combination with other vegetables, dairying, or other enterprises. Leading areas for fresh market shipment include the lower Eastern Shore of Maryland, southern Delaware, southern New Jersey, and western New York.

Labor is a leading consideration on vegetable farms, especially during the peak of the harvesting season. Although families on such farms are ordinarily large, considerable labor is hired. In the fresh market areas of Maryland, Delaware, and New Jersey dependence is placed upon migratory labor which follows the harvesting season up the Atlantic Coast. It is used to a lesser extent elsewhere. The labor problem on vegetable farms is made difficult because large crews are often needed for relatively short periods. A specialized vegetable farm may have a regular crew of 8 or 10 laborers, but need from 50 to 75 men on some days.

Vegetable farm problems and needed adjustments vary with the location and degree of specialization. Specialized farms in the shipping areas of New Jersey, Delaware, and Maryland are faced with different problems than dairy-canning crop farms, common in New York, Pennsylvania, and Maryland. Similarly, poultry-vegetable farms have a different set of problems.

Fortunately, it will be less difficult to obtain the needed increase in processing crops than in fresh vegetables. The latter require considerably more labor, the scarcity of which may force some specialized farms to

16/ Vegetables grown for processing include: asparagus, lima beans, snap beans, beets, cabbage (kraut), green peas, sweet corn, cucumbers (pickles), spinach, and tomatoes.

17/ Vegetables grown for fresh market shipment include: asparagus, lima beans, snap beans, beets, cabbage, cantaloupes, carrots, cauliflower, celery, sweet corn, cucumbers, egg plant, kale, lettuce, onions, green peas, green peppers, spinach, tomatoes, and watermelons.

decrease production. The acreage affected will either lie idle or be shifted to less intensive crops. On the intensively cultivated market garden farms a labor shortage may result in rather drastic adjustments. With few alternatives any decrease in double- and triplecropping would result in less production. In some cases, especially where market gardening has been a temporary vocation, operators may leave farms to accept other work.

Specialized vegetable farms, because of labor shortages, may shift in part to production of livestock, which requires a more uniform and often smaller supply of labor. Present poultry-vegetable farms are likely to continue about as formerly except that any relative economic advantage in producing either poultry or vegetables is likely to cause a decrease in production of the other commodity.

Potatoes and sweetpotatoes: Potatoes are produced commercially in every state of the region, but tend to be concentrated in certain areas. They are grown on both specialized and general farms. Potato acreage in the region, as in the United States, has fluctuated considerably but the trend has been down (appendix table 21).

Sweetpotato production, of minor importance in the Northeast, is confined chiefly to the specialized vegetable areas of southern New Jersey, southern Delaware, and the lower Eastern Shore of Maryland. Acreage has remained about the same in the region, but the trend is slightly upward for the United States.

Fruits: Fruit production is found mainly on specialized farms in several fairly well-defined areas throughout the region. Apple production was high in 1939 but the general trend, because of removal of many trees, loss of export markets, and low prices, is downward.

Peaches are important in western New York, Pennsylvania, and New Jersey and parts of Delaware, Maryland, and West Virginia. Production has remained fairly stable with an upward trend expected with the coming into bearing of new orchards.

Pears and grapes are grown in western New York and Pennsylvania, along Lakes Ontario and Erie, and in scattered areas of other states. The production of sour cherries which is centered in western New York along Lake Ontario and in Pennsylvania has increased slightly.

Blueberry production is important in southeastern Maine, and cranberries are grown in eastern Massachusetts and New Jersey. These two states produced more than three-fourths of the cranberries grown in the United States.

Labor requirements and production on most fruit farms are determined several years in advance. Tree fruits, brambles, vineyards, bushes, and bogs require a waiting period of several years before any income is realized. In contrast, operations on vegetable farms are considerably more flexible. Two or three crops are often grown on the same vegetable land in one year, especially on market garden farms.

Farms producing tree fruits have little opportunity for shifting production, except where the fruit is grown in combination with other enterprises.

In such cases shifts could be made in livestock numbers or on crop acreages. On specialized fruit farms, labor may be a limiting factor in harvesting full production. This problem will not be so serious on dairy-fruit or other combination fruit farms that maintain steady labor. Strawberry producers will be faced with problems similar to those of fresh vegetable growers.

Expected Production in 1943-45

Vegetables: In the Northeast, it is assumed that prices for fresh vegetables in 1943-45 will be from 15 to 20 percent above the 1935-39 level. Prices in the same period for processing vegetables are assumed at 33 percent above the previous level. Estimates of production responses to these assumed prices must be made with consideration to other factors which tend to influence production.

Cash costs of growing, harvesting, and marketing vegetables are expected to increase about 30 percent. Labor, the leading cash cost, is expected to increase about 50 percent. Some difficulty has already been experienced in obtaining sufficient labor during the harvest season, when the requirement may be 10 times the normal production needs. Other cash costs are expected to rise from 15 to 25 percent. It may also be difficult to obtain the desired quantities of fertilizer, machinery, marketing containers (burlap sacks, wooden baskets and crates), gasoline, and oil.

As the cost of many expense items is relatively fixed, total costs of producing vegetables are expected to increase only 15 to 20 percent. If prices tend to be at the highest assumed rate and costs tend to be low, a favorable price-cost ratio exists. If the reverse is true, a less favorable price-cost ratio prevails. A certain level of production would result from each condition, and production estimates are made for each.

The 1943-45 estimates for processing vegetables indicate production (equivalent tons) increases of 23 percent and 13 percent over 1939, a year of high yields, for the favorable and less favorable price-cost situations respectively (table 9). Most of the increases will take place in Delaware, Maine, Maryland, New York, and Pennsylvania. Tomato acreage may be increased materially in Delaware, Maryland, Pennsylvania, New York, and New Jersey. Sweet corn acreage is likely to increase in Maine, Pennsylvania, Maryland, and New York. Green lima beans for freezing, as well as for other uses, may be expected to expand mostly in New Jersey, Delaware, and Maryland.

Under favorable conditions, production of truck crops for fresh market shipment may increase to 1,418,600 tons (equivalent tons) in 1943-45 or about 13 percent over 1939 production (table 10). On the other hand, the less favorable price-cost ratio is estimated to bring about an increase of only 4 percent on a similar comparison. It is expected that a large part of any increases will take place in New York, New Jersey, and Pennsylvania.

Market garden production in 1943-45 under the favorable price-cost ratio is estimated to be 1,748,400 tons from about 291,400 acres. This represents an acreage increase of 6 percent over 1939 (table 11). A decrease is anticipated under the less favorable price-cost ratio.

Table 9. -- Production of vegetable crops for processing by states in the Northeast Region

State	Average	1939	1940	Expected 1943-45 under	
	1929-38			Unfavorable conditions	Favorable conditions
			Equivalent tons		
Me.	51,490	30,580	36,110	45,000	57,000
N. H.	2,460	400	1,200	1,280	2,240
Vt.	3,710	2,880	2,910	3,120	3,900
Mass.	1,820	1,320	2,090	3,770	5,000
Conn.	1,260	1,400	1,530	1,640	2,050
N. Y.	263,830	339,510	304,370	357,500	390,000
N. J.	179,530	209,550	209,130	226,950	249,200
Penna.	62,810	159,990	145,100	163,200	180,200
Del.	58,310	43,820	48,320	58,000	62,000
Md.	270,170	283,470	318,150	351,100	369,900
W. Va.	3,590	5,400	4,080	3,860	4,290
Total N.E.	898,980	1,078,320	1,072,990	1,215,420	1,325,780

Source: Average 1929-38, 1939 and 1940 from Agricultural Marketing Service, U. S. Department of Agriculture; 1943-45 figures are estimates.

Table 10. -- Production of vegetable crops for market by states in the Northeast Region

State	Average	1929-38	1939	1940	Expected 1943-45 under	Unfavorable	Favorable
					conditions	conditions	
					Equivalent tons		
Mass.	37,160	20,890	23,690	24,500	34,300		
N. Y.	548,550	641,170	723,140	680,000	733,000		
N. J.	311,980	338,370	350,330	330,750	361,000		
Penna.	100,900	121,390	140,510	140,000	150,000		
Del.	24,310	33,980	39,990	33,000	36,300		
Md.	83,970	94,610	123,740	98,000	104,000		
Total N.E.	1,106,870	1,250,410	1,403,400	1,306,250	1,418,600		

Source: Average 1929-38, 1939 and 1940 from Agricultural Marketing Service, U. S. Department of Agriculture; 1943-45 figures are estimates.

Combining these two sources, it is estimated that average annual fresh vegetable production may amount to 3,167,000 tons in 1943-45 under a favorable price-cost ratio. This would be about a 9-percent increase over 1939 tonnage. A 1-percent increase, making a total of 2,928,050 tons, is estimated under a less favorable price-cost ratio.

Potatoes and sweetpotatoes: The 1943-45 prices for potatoes are assumed to be about 20 to 22 percent over 1935-39 prices. Under these assumptions, potato production in the Northeast Region is expected to increase 12 percent over 1939, a year of low yields, but is expected to decrease about 1 percent compared to 1940. Any additional acreage change for Maine would be directly related to changes in acreage allotments or other phases of the AAA program. Production is expected to increase in Massachusetts, Connecticut, New York, Pennsylvania and New Jersey.

Sweetpotato prices are expected to increase from 20 to 30 percent during the same period. Even so, no large expansion in sweetpotato acreage is expected in the producing areas of New Jersey, Maryland, and Delaware because of increased competition from southern growers and because of superior alternative uses for land and other resources. Under a favorable price-cost ratio, it is estimated that 1943-45 production will be 3 percent less than the 1939 crop but 6 percent above the 1940 crop. Should less favorable conditions prevail, a decrease of 7 percent below the 1939 crop and an increase of 3 percent over the 1940 crop can be expected.

Fruits: The price of apples in 1943-45 is expected to be 20 percent above the 1935-39 average price. Increased competition of western apples which were formerly exported will tend to keep prices of some varieties at a lower level than would otherwise have been true.

Production in the Northeast, however, is expected to move downward. The 1943-45 regional crop is estimated at 38,453,000 bushels. This is 32 percent below 1939, a year of peak production, and 4 percent below 1940. Although yield per tree shows a long-time upward trend and can be increased substantially if favorable price-cost ratios prevail, this will be offset by a decrease in the number of trees coming into bearing relative to the number of trees going out of production. Falling production will probably be accentuated by neglect of trees that produce export varieties.

Table 11. -- Estimated market garden acreage by states, and production in the Northeast Region

State	Vegetables:		Market gardens			
	All	except mar-		Expected 1943-45 under		
	vegetables	ket gardens:		Unfavorable:	Favorable	
	1939	1939	1939	conditions:	conditions	
	(Acres)					
Me.	18,210	11,710	6,500	6,500	7,200	
N. H.	6,120	120	6,000	6,000	6,600	
Vt.	3,250	1,050	2,200	2,200	2,600	
Mass.	45,650	4,650	41,000	40,000	41,500	
R. I.	5,700	---	5,700	5,200	6,200	
Conn.	25,410	410	25,000	23,800	25,000	
N. Y.	241,400	170,940	70,460	70,000	75,000	
N. J.	162,330	153,530	8,800	8,200	9,300	
Penna.	141,640	61,640	80,000	79,500	86,000	
Del.	38,400	33,300	5,100	4,600	5,600	
Md.	147,810	138,810	9,000	9,000	9,900	
W. Va.	16,200	1,200	15,000	15,300	16,500	
Total N. E.	852,120	577,360	274,760	270,300	291,400	
	Production (tons):		1,646,800	1,621,800	1,748,400	

The production of peaches in the region is expected to increase by 1943-45. A general increase of 20 percent in price is anticipated. Production is expected to be similar to the large crop of 1939 (about 7,000,000 bushels). Many new trees are expected to come into production in the next few years, particularly in the southern part of the region.

Increases in the price and production of sour cherries, grapes, strawberries, cranberries, and other fruits are anticipated for 1943-45. There is a lag of several years, however, in the response of some of these crops. Labor requirements for harvesting most of these crops are high, and present labor shortage may discourage expansion.

"Desirable" Production in 1943-45

It has been estimated that, under the assumptions made, the 1943-45 production of processing vegetables in the Northeast can be expected to increase from 13 to 23 percent over 1939, and market vegetables from 1 to 9 percent. "Desirable" production is more difficult to estimate but probably would be somewhat higher, perhaps reaching 24 percent over 1939 for processing vegetables and 9 percent for market vegetables.

It is also possible that the production of fruits could be increased more, or decreased less, than indicated by the estimates of expectations. Large increases in the production of most fruits are impossible in a short period since it takes trees and vines a few years to come into bearing. Some further increases might come, however, from improved cultural practices, especially for orchards and vineyards neglected in recent years because of lack of markets and low prices.

Farmer adjustments: If either the expected or the "desirable" vegetable and fruit production for 1943-45 is to be obtained, it will be obtained by producers making certain adjustments in their farming operations. Some of the adjustments which appear to have possibilities for many producers are discussed below:

- (1) Truck areas can probably make wider use of available local and family labor, particularly during the harvest season. The exchange of labor between farms is a possibility in some sections. More efficient use of labor can be obtained by wider use of improved methods, closer field supervision, increasing size and improving shape of fields, and better packing shed arrangement. In substituting machinery for labor, consideration could be given to second-hand and to home-made equipment. A good example of the latter is the practice in some areas of making "jitterbug" tractors from used automobiles.
- (2) Increasing intensity of operation is another means of expanding production. This might be brought about by heavier fertilization, more double and intercropping, using seeds of high-yielding varieties, more spraying and dusting, and working longer hours. It will probably be profitable during the defense period to harvest a larger-than-usual percentage of many truck crops.
- (3) Leguminous cover and soil-building crops might partly offset any scarcity of nitrate supplies. Any general fertilizer shortage could be partially met by wise handling of animal manure. In some areas effects of droughts could be offset by irrigation. In general, irrigation in the Northeast is most practicable on intensively-operated truck-crop farms.

- (4) Grading and standardization should not be overlooked. With increased payrolls, demand should increase for high-quality products which command a premium price.

Family living: Production for home use on farms should not be neglected. With increasing food prices the value of home-produced fruits and vegetables will be realized as never before. Aside from economic considerations, adequate consumption of fruits and vegetables is desirable from the standpoint of proper nutrition for farm people.

Credit: Credit is a factor underlying the operations of all vegetable and fruit growers. Purchases should be made for cash wherever possible. Expansion based on credit should be undertaken with caution. The period of higher farm prices will be a good time to pay off or reduce present debts and make desirable changes in the organization of the farm business. However, on farms where it is necessary to buy machinery or make other capital investments it may not be possible to reduce debts much. Before commitments are made, the future situation as it applies to each individual farm should be carefully appraised. If credit is to be used, a reasonable expectation of repayment should be foreseen. Where crops are grown on a contract basis, producers have a fairly good means of measuring probable income and production credit needs can be adjusted accordingly.

The present credit situation on individual farms will have a bearing on adjustments that can be made. Increased production on farms that are debt burdened may be limited by the necessity of paying off notes and mortgages. In addition, it may not be possible to obtain additional credit for expansion.

Adjustments in public programs: There are many individual adjustments that can be made by farmers, but they should go hand in hand with over-all regional adjustments that can be made only through policies developed and administered by Federal, State, and other public agencies operating within the area.

When the United States Department of Agriculture inaugurated the Food-for-Defense program in April 1941 it included a request for an increase of 50 percent in the canned tomato pack. Some increases in the sweet corn, snap bean, and green pea packs were also considered desirable. The request for an increase of the tomato pack was accompanied by an offer to buy spot stocks and futures of canned tomatoes on the basis of competitive bids, giving consideration to the fact that canners would need to pay between \$2.75 and \$3.00 more per ton for processing tomatoes in 1941 than was paid in 1940 in order to obtain increased plantings.

The increase in acreage planted to tomatoes for processing in 1941 compared with 1940 was recently estimated at only 11 percent for the United States and approximately 6 percent for the Northeastern Region. A future program to increase supplies of processed vegetables might be facilitated by giving more definite price assurances and other incentives to growers and processors, and by giving such assurances well in advance of the planting season.

Long-Term Adjustments and Problems

Wherever possible, adjustments for 1943-45 should not conflict with sound long-term adjustments. However, if national defense needs cannot be met without such conflict, some compromise will be required.

With a return to peacetime conditions, opportunities for fruit and vegetable production in the Northeast are likely to be somewhat less favorable. It may be necessary to devote only the best land to their production. Some increase in livestock would be desirable especially for family living purposes. This would require a larger acreage for feed crops, thereby utilizing some of the poorer land now devoted to fruit and vegetable production. Such land will, in most cases, require a management program to restore soil fertility. Conservation practices should be given full attention on all farms.

During the defense period some growers, especially the smaller ones, will obtain non-farm employment. In many cases, the more productive of such farms could well be added to the units of nearby farmers. This might be done either on a lease or a purchase basis.

FOREST PRODUCTION

The Northeast was formerly the center of the lumber industry in the United States (table 12). The original stands contained many tree species, suitable for various uses. In the northern forest, such species as sugar maple, beech, yellow and paper birch, basswood, aspen, red spruce, balsam fir, and Norway pine were abundant. The forest of the southern part of the region was composed mainly of red, white, black, and scarlet oaks, hickory, chestnut, tupelo, black birch, and pitch pine. Species common to both northern and southern parts were white pine, hemlock, white ash, black cherry and red maple.

Table 12. -- Percentage of United States Lumber produced in Northeast Region/1

Date	Percentage	Date	Percentage
1850	54.8 /2	1909	15.0
1870	38.4	1919	9.7
1890	21.0	1929	5.0
1899	18.5	1937	4.9

1/ Source: United States Forest Service and Census Reports

2/ Does not include West Virginia which was not a separate state.

The supply of timber appeared inexhaustible then. But, after being subjected since colonial times to the pressure of the country's greatest population density, the situation has changed. This pressure was expressed first in the need for more cleared land for an expanding agriculture and then in successive waves of industrial utilization, often accompanied by destructive fires. At present, although more than half the land area can be classed as forest, a considerable acreage supports little in the way of timber and, in general, repeated cuttings have taken the best material from the woods.

In spite of the more than 200 years of intensive exploitation, the forests of the Northeast continue to make a large contribution to the economic

life of the region. Farm forests alone yielded an income of approximately $11\frac{1}{4}$ million dollars in 1934. /18 In addition to this direct cash return, farmers benefited from the use of forests for recreation through sale of other farm products and services, through income from harvesting, transporting and manufacturing of forest products, and by obtaining fuel, poles, and posts for home use. Maple products provide considerable income to farmers in some parts of the Northeast.

The increase in industrial activity and recent developments in the housing field, resulting from our national defense effort, has greatly increased the demand for forest products. An attempt is made here to examine the probable effects of the increased demand upon the woodlands in the Northeast and in the light of this analysis to suggest adjustments that appear to be desirable both in the near future (1943-45) and in the long run.

Lumber

Normally, the Northeast supplies a very small part of the total lumber cut. Large scale lumbering has long since departed from the region because of a lack of concentration of timber of the quality and size required. It was originally set up on a "cut-out and get-out" basis and as timber became depleted, the industry moved westward and expanded in the south. At present, most of the lumber production, 87 percent, is in the West and South, where large areas of high-grade timber still exist.

Preliminary estimates indicate that 1941 production will be about 30 billion board feet and in 1942 may reach 32 billion for the United States as a whole (table 13). Lumber production for the Northeast over the past decade has averaged 5.1 percent of the total production, and should the area continue to make the same contribution over the next few years, an increase of about 50 percent over the average annual cut for the period 1929-38 can be expected in the region.

With transportation facilities likely to be used to the limit during this emergency period, even heavier cutting may take place in the Northeast. Timber which in normal times is not acceptable to the industry will now be used somewhat to replace imports from other regions.

There is also unusual activity in the boxboard market, the principal outlet for eastern white pine. Already many mills are operating at capacity and competition is keen among purchasers for the remaining white pine stands.

Other Products

Demand is increasing in the fields other than lumber production, for which timber of this region is widely used.

National pulpwood consumption is on a higher level than ever before. Pulp mills which have been operating at only a fraction of capacity during recent years are having a boom in business. They will greatly increase their annual production in the immediate future. Curtailment of imports, which

are important to this industry, and a possible reduction in operations on company land, owing to labor difficulties, are likely to place a larger burden on farm woodlands. It seems probable that demands by New England industries alone will reach the predepression level of about 1,808,000 cords annually.

If the impending fuel shortage in the Northeast becomes serious, the fuelwood market will be more attractive than in many years. Even though conversion from oil and, to a lesser extent, from coal to wood may be costly the shift will undoubtedly be made in many instances. This shift will be most significant in rural areas because of the many difficulties involved in handling and transporting such a bulky, low-value product as fuelwood.

Table 13. -- Lumber production in the United States and the Northeast Region, 1929-45 /1

Year	Lumber Production		Percentage produced in	
	United States	Northeast	Northeast	
	(Millions of board feet)		(Percent)	
1929	36,886	1,865	5.0	
1930	26,051	1,401	5.4	
1931	16,523	850	5.1	
1932	10,151	523	5.2	
1933	13,961	602	4.3	
1934	15,494	922	6.0	
1935	19,159	1,003	5.2	
1936	24,355	1,216	5.0	
1937	25,997	1,282	4.9	
1938	20,768	1,027	4.9	
1939	25,000	---	---	
1940	27,000	---	---	
1941	30,000	1,530	5.1	
1942	32,000	1,632	5.1	
1943-45	32,000	1,632	5.1	

1/ Figures for 1929-40 from United States Forest Service Reports. Others are estimates.

Probable Effects of Defense Activity

All told, then, the drain on farm woodland in the region is likely to be serious, particularly as it may deprive farmers of the chance to fully utilize their labor to advantage in the future. The widespread use of portable mills, in the absence of better equipment, will make the problem more acute. The type of operation usually carried on by these mills not only strips all merchantable timber but also damages young growth and reproduction, thus prolonging the time that must elapse before another crop develops.

The use of this type of mill will also mean a reduction in the supplies available to the permanently located plant. Numerous wood-using industries depend upon the products of the farm woodland for their existence. These industries furnish seasonal or full-time work to many people. In addition to those working in the mills, others are engaged in logging and transportation. Wherever a wood-using industry ceases operation because of lack of raw material, unemployment is bound to result and the rural economy

is greatly affected. Loss of income within a community means a reduced market for all goods, farm produce included. In many rural areas this is an important point because so much of the farm produce is sold locally.

The effect of timber depletion on the tax situation is also worth considering. The loss of valuation must necessarily place a heavier burden upon other property. Although woodland can pay its way if kept productive, a policy of exploitation renders it incapable of doing so for some years.

Loss of work in the wood industries also often means increased expenditures for relief and further increase in the local tax burden. Usually the people involved are not particularly mobile. Their ties may prevent moving to localities where work is available.

Adjustments

Only definite action designed to alleviate the situation can be expected to prevent a repetition of what happened during the years 1914-20. From the standpoint of forest condition, we are not so well prepared now as then. This raises the question of what adjustments seem desirable to meet defense needs and the impacts of this war, both in the immediate future and in the long run.

For the consideration of the short-time adjustments, the region can be logically divided into two parts-- (1) areas where timber resources still exist, including Maine, New Hampshire, Vermont, western Massachusetts, Litchfield county, Connecticut, northern New York, western Pennsylvania, western Maryland and West Virginia, and (2) areas located in proximity to densely-populated industrial centers and having no appreciable amount of merchantable timber.

Areas with considerable merchantable timber: Farmers located in area (1) should make several adjustments in their method of handling their woodlands. In most cases the long-and short-time objectives are similar. It may be desirable to make a heavy cut to get the necessary supplies between now and the end of the war, but this is merely a difference in degree of intensity rather than a definite conflict of policies. This crop differs from other farm crops in that a much longer time will be required to increase production; therefore, to meet the emergency situation, it may be essential to cut into capital growing stock. However, more conservative management of woodlands than has prevailed in the past will be desirable. An all-aged forest is best suited to farm woodlands of this region, because of the small acreage of individual units and the need for annual supplemental employment on most farms. A shift from the practice of clear cutting to selective logging should be made immediately as a safeguard for the future. Normally these cuttings should be very light to get maximum growth but can be adjusted to meet situations like the present emergency without undue difficulty.

A second adjustment has to do with the method of woods operations by farmers. Wherever possible, woods work should be done by regular farm labor. Management is likely to be better and income will be greater because of the addition of a return for labor as well as stumpage. In cases where this is not feasible, the standing timber should be sold on a piece basis. The common practice of selling a lot for a lump sum leads to forest depletion and

frequently returns less income to the owner. When products are sold on a unit basis, the stumpage cost of raw material increases or decreases as more or less intensive cutting is carried on. This is not true when the timber on a lot is sold for a lump sum. In the former case, when stumpage cost is combined with the other variable costs of obtaining raw material, the smallest tree that it is profitable to cut is larger in size than when stumpage is a fixed cost. If the manufacturer does his own harvesting, the method of buying raw material is of special significance, for, although costs mount gradually as logging progresses to small diameter trees, the rise is very rapid in the milling operation. Best results will be obtained when stands can be marked in advance of cutting so that the buyer and loggers can see exactly what they are getting. Furthermore, valuable growing stock in the form of small trees would be saved.

Although the area being discussed has been classed as one containing most of the merchantable timber, there are many farmers with no timber to sell at present. They should take advantage of the favorable fuelwood market to put their woodlots into a better growing condition. Thinnings and improvement cuttings will add greatly to growth and will transfer growth to better trees. The products of this cultural treatment should find a ready market because of a shortage or higher prices of other fuel and the present below-normal supply of wood already cut.

Long-time adjustments in this area will vary little from those desirable in the short run. The only major one involves an adjustment in size of woodland on individual farms. Many farm units contain insufficient woodland to utilize farm labor fully. Over a period of years, operators of these units would do well to consider getting additional acreage to manage. This is of special importance in sections where there is little alternative work.

Areas with little merchantable timber: In the areas near industrial centers where there is little timber at present, the problem is not so serious. The increase in demand for products other than fuelwood can have no appreciable effect on growing stock. To be sure, there will be isolated lots in this area that will be good enough to attract a purchaser. Of no commercial importance normally, increased prices may make logging these lots profitable. Undoubtedly they will and should be cut in a way that will insure the highest immediate return at all consistent with good silviculture. After logging, the condition of one person's woodlot will be no worse than his neighbors' and, until most owners have built up their woodland, no permanent wood-using industry can be located there.

Now is an excellent time to do improvement work in the forest of this area. Rather than clear-cutting portions of young hardwood stands, and raising another generation of stump sprouts, inferior trees should be removed from the entire stand to permit the development of the remaining stems. Only a little more time will be required to harvest the same amount of wood than would be the case when clear-cutting is practiced.

No widespread planting program for farm woodlands seems desirable. The nucleus of a new crop usually is to be found in the volunteer stand already on the ground. By such practices as weeding and improvement cutting and in all cases by using the virgin forest composition as the guide for silviculture, excellent results can be expected.

Conclusions

Woodlands in the Northeast play an important part in the farm economy. In view of certain developments in agriculture in the United States, it seems probable that they will play a more important part in the future. This being the case, farmers should adopt sound forest management practices now if they are to get the most from this resource over a period of years. Growing stocks must be built up through careful cutting and cultural treatment. Even-aged stands should be converted to all-aged by selective cuttings designed to improve quality as well. The all-aged forest will yield the greatest amount of products, a significant factor when dealing with small acreages. It not only makes use of all the space in the horizontal plane but also of every available space in the vertical plane. Once height is attained, it should be maintained if possible because it is essential to sustained production.

Estimates made by the United States Forest Service /19 indicate that under a reasonable application of forestry practice, in which all the area devoted to commercial production would be under management and 25 percent of this intensively managed, growth in the Northeast might eventually be about doubled. This figure would be greater if only the production on farm woodland were included. Growth rates of at least 3 percent and in some cases as high as 4 percent should be reasonable for these areas, once built up to somewhere near full productivity.

Obviously it will be impossible to make a substantial approach toward the increase in growth during the short-time period. Further depletion of growing stocks is inevitable and the date at which any increased cut can be sustained is pushed further into the future. To minimize the effect upon present timber stands and upon rural people, every effort should be made to distribute the increased cutting in accordance with sound silviculture.

In considering the desirable long-time adjustments in farm forestry, a more thorough study of the lumber industry and its needs seems advisable. Definite planning as to the areas where timber production should be encouraged and the intensity of management suited to different locations should be basic to any forestry program. From the standpoint of the best utilization of this natural resource, it may well be that a sort of ever-normal granary for forestry would be helpful. The farm woodlands offer the best chance to practice intensive forestry, while the large private holdings are well adapted to a more extensive management.

The two groups appear to control sufficient acreage and these lands have the productive capacity to meet the usual demand. That leaves the public forests, which could be maintained as a back-log on which to draw for additional material when needed and a place to practice very intensive silviculture (on a limited scale) to produce some high-quality material on a long rotation. Private interests cannot be expected to hold timber from the market long enough to produce a quality and size essential to certain uses. The existence of a large acreage of well-stocked public forest, properly distributed, should go a long way toward preventing wholesale stripping of farm woodlands during emergency periods.

OTHER ENTERPRISES

Other farm enterprises in the Northeast include feed crops, cash grain, tobacco, beef cattle, sheep, hogs, and a few specialties such as mushrooms. By and large the adjustments made in their production depend on what happens to dairying, poultry, fruits, and vegetables.

Feed Crops

Hay: Feed crop production is closely related to shifts in livestock production. Hay especially is closely associated with dairying. The acreage of all hay in the Northeast has increased slightly in recent years (appendix table 22). Alfalfa and soybean hay have increased whereas mixed clover and timothy have decreased. Production should increase to provide more roughage in the 1943-45 period. From a long-time point of view increased production of leguminous hays would be in direct relation to expansion of conservation efforts.

Corn: More than one-fourth of the corn grown in the Northeast is utilized as silage. In New England and New York State approximately two-thirds of all corn is for silage. In Delaware, Maryland, and Pennsylvania the rental agreement in operation on most tenant-operated dairy farms has tended to keep silage production down. Grass silage production has been increasing in importance in New York, Massachusetts, Pennsylvania, and New Jersey. Corn acreage and production have remained fairly stable, but with increased use of hybrid varieties production may be expected to increase in grain-producing areas (appendix table 22).

In 1941 several counties in Pennsylvania, Maryland, and Delaware were placed in the commercial corn areas as defined under the provisions of the AAA program. However, when the Food-for-Defense program was announced, farmers were allowed to grow up to their usual corn acreage without penalty. Most farmers in these counties think it is essential that this practice be continued until the emergency has passed. From a long-time point of view some decrease in corn acreage is desirable in areas subject to severe erosion.

Barley: Barley acreage and production have increased rapidly in recent years, especially in Maryland, Delaware, and Pennsylvania (appendix table 22). It is a valuable dairy feed and serves as a good crop on land shifted from wheat because of allotments. Because of needed increases in livestock production, increased production of barley to provide home-grown feed is desirable, both from a short-time and a long-time point of view. Winter barley is a good crop for following corn silage on dairy farms in the southern part of the region. In New York considerable spring barley is grown as a mixture with oats. This combination of grains provides excellent dairy feed. Growing of the mixture results in higher yields and less lodging than when grown separately.

Oats: Oat acreage and production while declining slightly have remained fairly stable (appendix table 22). New York, Pennsylvania, and Maine are the leading producers. Oats, except where grown as a mixture with barley, should decline in acreage except in areas where climatic conditions are ideally suited to securing heavy yields. Slightly increased production for the present period would be desirable to provide more feed.

Rye: Rye is grown principally in Maryland, Delaware, Pennsylvania, New York, and New Jersey where it is used as a feed crop and as a cover crop on the sandy soils of the Coastal Plain. Acreage and production for 1943-45 and the long-time period should remain fairly stable with a slight decrease desirable in areas where a shift can be made to barley.

Cash Grain Crops and Tobacco

Wheat: Northeastern wheat acreage declined steadily until stimulated by World War I conditions. Since then it has gradually declined, being grown mainly in states outside of New England. Wheat acreage in recent years has been influenced by allotments (appendix table 23). For both the 1943-45 period and the long-time period, and especially in view of limited future markets, it would be desirable for part of the wheat acreage to be replaced by barley and other feed crops. This shift would be most desirable in areas where feed crop yields are high relative to wheat yields.

Buckwheat: Buckwheat is an important crop in New York and Pennsylvania, these states accounting for more than three-fifths of the nation's total production. Production has been decreasing and is not expected to change greatly in the next few years (appendix table 23).

Soybeans: Soybeans for grain have increased rapidly in recent years, especially in Delaware, Maryland, and Pennsylvania. This has been facilitated by the greater use of combines. With development of higher yielding varieties soybean production should increase in future years. Soybeans will provide another possible source of home-grown feed grains during the emergency period. This crop is flexible in that it can be harvested as grain or as hay.

Dry Beans: Acreage and production of dry edible beans, most of which are produced in New York, have remained fairly stable. With increased demand resulting from the Food-for-Defense program increased production for the 1943-45 period is expected and would be desirable.

Tobacco: Tobacco production is important in the 5 counties comprising southern Maryland and in a few counties in Pennsylvania, Connecticut, and Massachusetts. Since the start of World War II Maryland tobacco is being used more as a blend with other tobacco in cigarette manufacture. It has replaced Turkish types formerly imported from Turkey, Greece, and Bulgaria, for it possesses similar qualities relative to burning, taste, and aroma. Coupled with this condition is the increasing consumption of cigarettes. As a result Maryland tobacco appears to be in a fairly good economic position for the 1943-45 period. A slight increase in acreage is expected.

Livestock Enterprises

Production of beef cattle, sheep, and hogs is of minor importance in the Northeast. These enterprises usually are found as sidelines in combination with dairying, poultry, vegetables, and fruits.

Beef Cattle: Beef production in the Northeast has remained fairly stable, but in recent years production has increased slightly (appendix table 24). Much of the beef is cull dairy cattle. From one-fourth to

one-third of production of cattle and calves is from calves.

In West Virginia, Maryland, Pennsylvania, and New York a few beef cows are kept on many farms. In addition, some farmers, especially in Pennsylvania and West Virginia, import feeder calves from the West and South for fattening. Some increase in beef production has resulted in recent years because wealthy individuals have stocked farms with purebred beef animals. An increase in beef may be desirable in a few areas where roughage and other feed are plentiful and where dairy markets are not available. Barring unforeseen developments, production should remain about the same for the 1943-45 period. From a long-time point of view stable or slightly reduced production seems desirable.

Hogs: Hog production in the Northeast is mostly either a specialized garbage feeding or a family-living enterprise. If experience during World War I is repeated production is likely to increase during 1943-45. In recent years hog numbers increased until 1940 when many hogs were liquidated (appendix table 24). This was due to low prices caused by large market supplies. With increased domestic activity, exports under the Lease-Lend Act, and ample feed supplies United States production should increase rapidly. Northeast production, while increasing, is likely to be less rapid because of superior alternatives. Except for Massachusetts most of the increase is expected in areas outside of New England. Many farms not now raising hogs could well afford to raise a few for home use. In some cases hogs might prove profitable in utilizing waste and low-quality products.

Sheep, Lambs, and Wool: Sheep and lamb production in the Northeast have been declining rapidly for a number of years although the rate of decline has been less in West Virginia, Pennsylvania, New York and Maryland (appendix table 25). Prospective higher prices in the next few years, especially for wool, will probably halt this downward trend temporarily. Wool production has declined with the general trend in sheep numbers and mutton production (appendix table 26). From a long-time point of view sheep and lambs should continue to decline in importance except in areas without good dairy markets and where feed supplies are plentiful. Stabilized or increased production would be desirable for the 1943-45 period. Small farm flocks have proved to be profitable sidelines in some areas.

SUMMARY AND CONCLUSIONS

The major contribution that agriculture can make to national defense is to produce the foods and fibers needed for domestic and Lend-Lease uses. In considering production estimates in relation to probable needs, a margin of safety is necessary to insure against low yields caused by unfavorable weather. Now, more than ordinarily, underproduction, even for one year, might create a serious problem. The estimates in the preceding pages indicate that, with normal weather and under the assumptions made, northeastern farmers can be expected, by 1943-45, to increase the production of dairy and poultry products; fresh truck crops, processing truck crops, and some fruits, by quantities ranging from 4 to 18 percent (table 14). The only decreases expected are in apples and some minor enterprises. The net result probably would be an all-time peak in the dairy and poultry production of the region, and possible in total agricultural production.

Production increases would be greater if farmers were to make the maximum response that would be profitable under the assumptions, and at the same time not make changes that would conflict seriously with needed long-term adjustments. This "desirable" production is shown in table 14.

Can these increases take place in view of the fact that during the next few years there will probably be a smaller labor supply and possibly less of some other resources devoted to agricultural production in the region? A reduction in labor supply now, because of higher production per worker, would be more serious than in 1914-18. Furthermore, in contrast to the First World War period, northeastern farmers are less well prepared in many ways to expand production. In spite of recent progress under conservation programs soil resources in some areas are still below 1914 levels, equipment and buildings are in need of repair, financial reserves are lower, and the average age of farmers is higher.

If such production is to be achieved, it will be done through adjustments made by individual farmers. Although every farm, in some respects, is a problem in itself, there are some adjustments which, under the price assumptions made, are likely to be profitable in the 1942-45 period. In general they can and should be made without additional buildings and without increasing long-term debts. Many of them have already been initiated by certain farmers. Further price assurances to farmers may be necessary to obtain their widespread adoption. They have most application to the farms on the more productive land adapted to intensive operation. Needless to say, their application will vary among areas and among farms in the same area. Some of the more important adjustments are as follows:

- (1) Increase the rate of feeding of dairy cows. Increases of 10 to 20 percent over 1941 rates could well be considered. In 1942 much of the increase would have to come from additional concentrates. Increased feeding should be accompanied by more attention to the feeding of individual cows according to capacity.

Milking cows 3 times daily, together with increased feeding, would be an effective way to increase milk production materially and quickly--especially with high-producing cows. This could be applied to part or all of the cows in a herd, and during part or all of the months. It is not essential to milk at exactly 8-hour intervals.

- (2) Increase the numbers of cows and hens. Cow numbers in the region probably could be increased 5 to 7 percent and hen numbers at least 15 percent over the average numbers kept in 1941, without new buildings or major alterations.

It might be difficult to obtain such an increase in cow numbers, especially if the normal flow of replacements from other regions is disturbed. Less culling of cows would be essential. In years of low roughage supplies, it may be possible to make a partial substitution of concentrates for roughage in order to avoid the sale of needed cattle. Young stock should usually be sold first if any selling is necessary.

Hen numbers can be increased materially on present farms without new housing. This could be done by filling poultry houses to capacity and by keeping them filled throughout the year. On some

farms the "barracks system" will help to do this, and in other cases it may be desirable to start some replacement chicks in the fall or to do less culling.

- (3) Expand the production of some crops. Larger quantities of feed crops and certain other crops will be needed. Increased production can be obtained by heavier fertilization and by use of improved seed and methods. In some cases it may be practical for farmers to use cropland that is now idle, on either their own or nearby farms. Probably no additional farm units need be set up.

The production of individual truck crops can be increased greatly both by the above methods and by shifting acreage between crops. The extent to which this is done will depend largely on price inducements to producers.

- (4) Be prepared for shortages in labor and essential materials of production. Labor shortages can be, and are being, offset to some extent by more use of family labor and by greater use of tractors, hay loaders, milking machines, etc. Temporary shortages of purchased feed can be met by carrying larger supplies on farms. Substitutes are possible for certain materials. Fertilizer shortages might be partly offset by greater use of cover and soil-building crops, as well as by wiser use of available materials.

The efforts of individual farmers will need to be supplemented by changes in public policies and programs. Conservation and allotment programs may need to be modified to encourage and facilitate the production required. New credit policies may be necessary, an active educational program will be essential, and further price assurances may be required.

Long-term problems and adjustments are likely to be quite different. Declining prices are to be expected in the post-defense period, although courageous measures may do much to prevent the decline and to cushion its effects. In addition, northeastern farmers may find themselves facing greatly increased competition from other regions of the United States. In view of these possibilities, it is believed that the following long-term adjustments would be worth consideration on commercial northeastern farms:

- (1) Use increased income during the 1942-45 period to put the farm plant in good repair, to build up soil fertility, to reorganize poorly-balanced and uneconomic-sized farms, and to reduce debts. There may be some conflict between the last point and the first three. If so, debt reduction, on farms well adapted to permanent agriculture, can probably be made with safety at a slower rate.
- (2) Intensify efforts to increase efficiency. Full advantage should be taken of the market opportunities of the region. Conservation should be a goal. Dairy farmers probably will find it profitable to produce more and better roughage. Probably one-third more roughage could well be fed per cow. Pasture improvement should be expanded. Ladino clover is a very promising pasture legume over much of the region.

If the estimates of expected production for 1943-45 are in error, it is likely, except for eggs, that they are overstatements rather than understatements of the production which will actually be achieved. Although farmers are resourceful, and under certain conditions may be willing to work longer hours, there is a limit to what can be done with a reduced supply of farm labor and possibly of other resources. It cannot be overlooked that during World War I total agricultural production in the United States failed to keep pace with population growth.

Perhaps one of the significant points brought out in the production estimates is that, by and large, the prospective increases are probably smaller percentage increases than will be needed in these commodities for the country as a whole. There are indications, for example, that by 1943-45, if not sooner, the needed United States dairy production may be as much as 12 to 15 percent above 1941. If such production is to be obtained, it is very probable that the Northeast will have to expand dairy production more than 5 percent. If it is not obtained, we may find ourselves, as in World War I, consuming less per capita of important food items.

Table 14. -- Crop and livestock production estimates for 1943-45 on farms
in the Northeast Region /1

Item	Unit	Average annual			Percent change	
		1939 actual	1943-45 estimates		from 1939	
			Expected	"Desirable"	Expected	"Desirable"
			(Thousands)		(Percent)	
No. of farms /2	No.	634	627	621	-1.0	-2.0
All land in farms /2	A.	61,012	60,097	59,182	-1.5	-3.0
Cropland /2 /3	A.	23,501	23,384	23,266	-0.5	-1.0
Wheat for grain	A.	1,849	1,757	1,572	-5.0	-15.0
	Bu.	37,807	35,161	31,440	-7.0	-16.9
Rye for grain	A.	154	152	150	-1.3	-2.6
	Bu.	2,231	2,119	2,097	-5.0	-6.0
Corn, all purposes /4	A.	3,600	3,492	3,600	-3.0	0
	Bu.	134,254	134,925	138,953	0.5	3.5
Corn, except for silage	A.	2,696	2,603	2,693	-3.4	-0.1
	Bu.	99,347	100,601	103,681	1.3	4.4
Corn for silage	A.	904	889	907	-1.7	0.3
	Tons	8,205	8,090	8,254	-1.4	0.6
Oats for grain	A.	2,051	2,051	2,051	0	0
	Bu.	63,221	65,118	65,118	3.0	3.0
Barley for grain	A.	367	371	385	1.1	4.9
	Bu.	10,436	10,540	10,958	1.0	5.0
Buckwheat	A.	280	280	280	0	11.0
	Bu.	4,425	4,912	4,912	11.0	11.0
Dry edible beans	A.	153	170	170	11.1	11.1
	Bu.	1,243	1,305	1,305	5.0	5.0
Soybeans for beans	A.	63	69	72	9.5	14.3
	Bu.	944	1,038	1,076	10.0	14.0
All hay (except sorghums)	A.	11,034	11,215	11,298	1.6	2.4
	Tons	12,031	13,439	13,527	11.7	12.4
Alfalfa hay	A.	671	705	738	5.1	10.0
	Tons	1,134	1,270	1,474	12.0	30.0
Soybean hay	A.	148	150	152	1.4	2.7
	Tons	211	226	228	7.1	8.1
Tobacco	A.	99	105	105	6.1	6.1
	Lbs.	115,035	116,185	116,135	1.0	1.0
Potatoes	A.	739	813	813	10.0	10.0
	Bu.	109,709	122,650	122,650	11.8	11.8
Sweetpotatoes	A.	29	29.7	29.7	2.4	2.4
	Bu.	4,440	4,307	4,307	-3.0	-3.0
Vegetables, processing	A.	316	386	393	22.2	26.3
	Tons	1,078	1,272	1,337	18.0	24.0
Vegetables, fresh shipment	A.	259	275	282	6.2	8.9
	Tons	1,250	1,350	1,400	8.0	12.0

Table 14. (Continued) -- Crop and livestock production estimates for 1943-45 on farms in the Northeast Region ^{/1}

Item	Unit	1939 actual	Average annual		Percent change	
			1943-45 estimates		from 1939	
			Expected	"Desirable"	Expected	"Desirable"
			(Thousands)		(Percent)	
Market garden						
vegetables	:A.	275	280	291	1.8	5.8
	:Tons	1,647	1,685	1,748	2.3	6.1
Total fresh						
vegetables ^{/5}	:A.	534	555	573	3.9	7.3
	:Tons	2,897	3,035	3,148	4.8	8.7
Total all						
vegetables ^{/6}	:A.	850	941	972	10.7	14.4
	:Tons	3,975	4,507	4,485	8.4	12.8
Apples	:Bu.	57,149	38,861	45,719	-32.0	-20.0
Peaches	:Bu.	6,968	6,968	7,038	0	1.0
Beef & veal						
(liveweight)	:Lbs.	1,017,970	1,017,970	1,017,970	0	0
Pork(liveweight)	:Lbs.	527,760	580,536	591,091	10.0	12.0
Lamb & mutton						
(liveweight)	:Lbs.	66,040	68,021	69,342	3.0	5.0
Milk cows	:No.	3,625	3,853	3,951	6.3	9.0
Milk produced	:Lbs.	18,921,000	21,367,000	22,687,000	12.9	19.9
Wool shorn	:Lbs.	8,726	8,988	9,162	3.0	5.0
Chicken eggs	:Doz.	554,418	637,581	693,022	15.0	25.0
Chickens						
raised ^{/7}	:No.	118,405	136,166	142,086	15.0	20.0
Chickens						
slaughtered ^{/7}	:Lbs.	418,526	472,934	502,231	13.0	20.0
Poultry meat						
sold ^{/8}	:Lbs.	556,000	667,000	695,000	20.0	25.0

Source: All 1939 data from Agricultural Marketing Service, unless indicated otherwise. Crop acreages are 1939 harvested.

^{1/} Includes the following states: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, and West Virginia.

^{2/} From U. S. Agricultural Census for 1940

^{3/} Includes cropland harvested, crop failure, and idle or fallow cropland.

^{4/} Includes corn for all purposes. Total production is expressed in grain equivalent.

^{5/} Includes commercial vegetables for fresh shipment and market garden vegetables.

^{6/} Includes commercial vegetables for processing, commercial vegetables for fresh shipment, and market garden vegetables.

^{7/} These figures are liveweight and include only a part of commercial broiler production. See text on page 28.

^{8/} No figures are available for total poultry meat production. The figures given represent rough estimates by the authors of total sales of chickens, commercial broilers, turkeys, ducks, geese, and guineas.

Table 15.-- Cows on farms: Number and production per cow in Northeast Region, 1925-41 /1

Item	1925	1930	1935	1936	1937	1938	1939	1940	1941/2
Average number of cows			(Thousands)						
Maine	147	135	142	140	140	140	140	140	141
New Hampshire	79	75	78	76	74	74	74	74	74
Vermont	267	264	272	277	281	283	287	290	295
Massachusetts	140	128	133	135	137	137	137	137	139
Rhode Island	22	21	21	22	23	23	23	23	23
Connecticut	111	103	115	118	121	122	124	124	126
New York	1,342	1,290	1,270	1,296	1,320	1,340	1,355	1,376	1,400
New Jersey	116	114	132	134	136	138	140	144	147
Pennsylvania	861	828	875	870	870	873	882	893	920
Delaware	33	31	33	33	33	33	34	34	35
Maryland	175	175	183	181	182	187	191	195	201
West Virginia	214	202	247	240	237	238	238	238	240
Northeast Region	3,507	3,364	3,501	3,522	3,554	3,588	3,625	3,663	3,741

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Annual production per cow	(Pounds)								
Maine	4770	4970	4450	4470	4600	4730	4660	4780	4950
New Hampshire	4980	5090	4840	4900	4800	4800	4780	4900	5000
Vermont	4660	4890	4930	4970	4940	4880	4850	5100	5250
Massachusetts	5930	5990	5810	5790	5840	5850	5870	5980	6015
Rhode Island	6030	6350	6300	6130	6250	6240	6300	6450	6520
Connecticut	5610	5770	5420	5480	5650	5780	5810	5780	5755
New York	5200	5480	5477	5546	5600	5540	5509	5730	5790
New Jersey	6080	6400	6400	6430	6450	6540	6490	6510	6600
Pennsylvania	4950	5200	5140	5230	5240	5300	5240	5350	5330
Delaware	4000	4000	3950	4050	3980	4140	4200	4240	4340
Maryland	4300	4300	4220	4330	4340	4450	4580	4580	4670
West Virginia	3330	3620	3420	3420	3500	3570	3530	3460	3400
Northeast Region	4980	5218	5120	5190	5232	5246	5220	5358	5401

1/ Farm Production, Disposition, and Income from Milk 1924-1940, Agricultural Marketing Service

2/ The 1941 figures are preliminary estimates.

Table 16 — Milk: Farm production and price in the Northeast Region, by states, 1925-1941

Item	1925	1930	1935	1936	1937	1938	1939	1940	1941
Total production on farms /1			(Million pounds)						
Maine	701	661	632	626	644	662	652	669	698
New Hampshire	393	382	378	372	335	355	354	363	370
Vermont	1,244	1,291	1,341	1,377	1,388	1,381	1,392	1,479	1,549
Massachusetts	830	767	773	782	800	801	804	819	836
Rhode Island	133	133	132	135	138	144	145	148	150
Connecticut	623	594	623	647	684	705	720	717	725
New York	6,978	7,068	6,956	7,188	7,392	7,424	7,465	7,884	8,102
New Jersey	705	730	845	862	877	903	909	937	970
Pennsylvania	4,262	4,322	4,498	4,550	4,559	4,627	4,622	4,778	4,900
Delaware	132	124	130	134	131	137	143	144	152
Maryland	752	752	772	784	790	832	875	893	939
West Virginia	713	731	845	821	830	850	840	823	816
Northeast Region	17,466	17,555	17,925	18,278	18,568	18,821	18,921	19,654	20,207
Wholesale price per 100 lbs. /2			(Dollars)						
Maine	2.55	2.50	2.00	2.00	2.00	2.00	2.00	2.10	2.53
New Hampshire	2.75	2.80	2.10	2.10	2.00	2.10	2.15	2.25	
Vermont	2.45	2.45	1.85	1.85	1.75	1.75	1.85	1.95	
Massachusetts	3.10	3.40	2.80	2.85	2.75	2.65	2.65	2.65	
Rhode Island	3.15	3.30	2.75	2.85	2.85	2.70	2.70	2.70	
Connecticut	3.35	3.35	2.40	2.55	2.80	2.60	2.60	2.65	
New York	2.45	2.40	1.84	1.95	1.96	1.79	1.79	2.02	
New Jersey	2.80	3.00	2.53	2.61	2.73	2.69	2.63	2.80	
Pennsylvania	2.60	2.45	1.90	2.00	2.20	1.90	1.90	2.05	
Delaware	2.65	2.80	1.95	2.00	2.25	2.05	2.00	2.05	
Maryland	3.05	3.05	2.25	2.30	2.45	2.30	2.20	2.40	
West Virginia	2.90	2.65	1.80	2.00	2.20	2.10	2.05	2.15	
Northeast Region	2.61	2.68	1.98	2.07	2.13	1.97	1.97	2.14	

Wholesale price of mixed dairy grain /3

(Dollars per Ton)

1/ Farm Production, Disposition, and Income from Milk, 1924-40, Agricultural Marketing Service. The 1941 figures are preliminary estimates by the same agency.

2/ ibid.

3/ Wholesale prices of dairy grain at Utica, New York. Published in Farm Economics, Cornell University.

Table 17. -- Eggs: Farm production and price in the Northeast Region, 1925-41.

Item	1925	1930	1935	1936	1937	1938	1939	1940	1941
Production of chicken eggs by farm flocks ¹				(Millions)					
Maine	218	207	205	198	239	221	240	250	271
New Hampshire	133	119	156	174	195	171	191	172	176
Vermont	106	94	91	95	112	101	117	129	131
Massachusetts	222	269	360	376	400	416	405	432	454
Rhode Island	34	40	38	40	45	41	45	51	56
Connecticut	193	231	252	257	309	303	321	344	369
New York	1,445	1,476	1,511	1,581	1,793	1,659	1,703	1,820	1,868
New Jersey	416	563	563	557	619	613	690	691	721
Pennsylvania	1,737	1,865	1,743	1,832	2,086	2,031	2,063	2,042	2,148
Delaware	113	170	83	97	104	110	111	116	120
Maryland	360	407	314	320	348	340	345	351	344
West Virginia	395	401	376	380	406	414	422	419	401
Northeast Region	5,372	5,842	5,692	5,907	6,656	6,420	6,653	6,817	7,059
Farm price of eggs ²					(Cents per dozen)				
Maine	39.3	36.6	31.4	30.2	29.0	30.1	26.7	26.9	1
New Hampshire	43.9	39.6	33.7	32.9	30.9	31.6	27.8	27.7	34
Vermont	38.7	34.6	29.7	28.6	27.9	29.1	24.9	25.5	1
Massachusetts	49.0	44.1	36.0	34.8	32.3	32.7	28.9	27.7	
Rhode Island	48.9	42.0	34.3	33.5	33.3	32.0	28.1	28.3	
Connecticut	46.0	40.4	33.8	32.8	31.6	31.4	27.3	28.4	
New York	37.9	32.2	29.2	27.4	26.3	26.4	23.6	23.9	
New Jersey	43.3	36.4	31.8	30.5	30.4	29.6	26.2	26.9	
Pennsylvania	35.8	29.2	26.4	25.7	24.9	24.5	21.8	22.6	
Delaware	35.5	29.3	25.4	23.8	23.7	22.4	19.9	20.6	
Maryland	34.3	26.8	25.2	23.5	22.9	22.5	19.8	20.5	
West Virginia	33.6	26.6	23.0	22.4	22.1	21.0	18.7	19.3	
Northeast Region	38.1	32.2	28.9	27.7	26.8	26.6	23.6	24.1	

Price of poultry ration

Ration A ³Ration B ⁴

¹ Farm Production and Disposition and Income--Chickens and Eggs; Chickens on Farms, January 1, Agricultural Marketing Service. The 1941 figures are preliminary estimates.

² Ibid. ³ Wholesale prices of a poultry ration at Utica, N.Y. Published in Farm Economics, Cornell University.

⁴ Unpublished retail prices of a poultry ration in Connecticut. University of Connecticut.

Table 18 -- Layers on farms: Number and production per bird in Northeast Region, 1925-41 /1

Item	1925	1930	1935	1936	1937	1938	1939	1940	1941
Hens and pullets on farms, Jan. 1				(Thousands)					
Maine	1,895	1,680	1,505	1,476	1,717	1,527	1,660	1,766	1,767
New Hampshire	1,187	1,020	1,105	1,190	1,355	1,177	1,262	1,271	1,232
Vermont	939	830	728	728	800	719	792	920	876
Massachusetts	1,965	2,150	2,480	2,664	2,860	2,686	2,754	2,939	2,921
Rhode Island	343	333	291	305	318	291	303	352	355
Connecticut	1,663	1,765	1,877	1,960	2,143	1,972	2,140	2,373	2,420
New York	13,505	13,061	12,491	12,750	13,903	12,666	13,376	14,045	13,313
New Jersey	3,714	4,850	4,296	4,387	4,587	4,541	4,750	4,924	5,105
Pennsylvania	16,543	17,590	15,848	16,658	18,299	16,786	17,577	17,989	17,348
Delaware	1,160	1,870	926	915	963	914	912	964	964
Maryland	3,826	4,330	3,199	3,166	3,248	3,091	3,152	3,246	3,119
West Virginia	4,204	4,262	3,793	3,916	3,981	3,733	3,876	4,026	3,882
Northeast Region	50,944	53,741	48,539	50,115	54,174	50,103	52,554	54,815	53,302

Eggs laid annually per hen and pullet on farms on Jan. 1 /2				(Number)					
Maine	115	123	136	134	139	145	145	142	153
New Hampshire	112	117	141	146	144	145	151	135	143
Vermont	113	113	125	131	140	140	148	140	150
Massachusetts	113	125	145	141	140	155	147	147	156
Rhode Island	99	119	132	132	140	141	149	145	158
Connecticut	116	131	134	131	144	148	150	145	152
New York	107	113	121	124	129	131	127	130	140
New Jersey	112	116	131	127	135	135	145	140	141
Pennsylvania	105	106	110	110	114	121	117	114	124
Delaware	97	91	90	106	108	120	122	120	124
Maryland	94	94	98	101	107	110	109	108	110
West Virginia	94	94	99	97	102	111	109	104	103
Northeast Region	105	109	117	118	123	128	127	124	132

1/ Farm Production and Disposition and Income--Chickens and Eggs; Chickens on Farms, January 1, Agricultural Marketing Service.

2/ The 1941 figures were computed from preliminary estimates of production.

Table 19 -- Poultry meat: Farm production, slaughter, and price in the Northeast Region, 1925-40/1

Item	1925	1930	1935	1936	1937	1938	1939	1940
Chickens produced /2	: 77,246	: 91,874	: 96,901	: 110,536	: 92,957	: 104,416	: 109,774	: 95,799
Chickens slaughtered /3	: 77,165	: 95,628	: 95,021	: 105,678	: 98,381	: 101,404	: 106,985	: 97,978
Chickens slaughtered /4	:	: 336	: 348	: 396	: 377	: 382	: 418	: 396
Price of chickens /5	:	: 24	: 18	: 19	: 19	: 19	: 17	: 16
Turkeys sold	:	: 1,199	: 1,940	: 2,299	: 2,262	: 2,314	: 2,643	:

1/ Farm Production and Disposition and Income--Chickens and Eggs; Chickens on Farms, January 1, Agricultural Marketing Service.

2/ Chickens sold plus consumed in farm household, and the plus or minus change in inventory.

3/ Chickens sold plus consumed in farm household.

4/ Computed by multiplying number slaughtered by average weight per head sold.

5/ Computed by weighting state prices by pounds sold.

Table 20 -- Acreage of vegetable crops for processing by states in the Northeast Region

State	Average 1928-32	1936	1937	1938 (Acres)	1939	1940	1941 /1
Maine	13,823	19,800	23,300	18,360	11,710	14,870	17,660
N. H.	1,000	830	750	420	120	340	570
Vt.	1,828	1,240	1,430	1,330	1,050	1,070	1,340
Mass.	522	520	600	700	550	720	1,240
Conn.	268	380	380	360	410	380	260
N. Y.	83,840	101,860	98,800	95,730	90,470	95,210	117,700
N. J.	36,340	45,150	52,950	53,960	46,280	46,020	52,750
Penna.	16,642	29,690	34,610	38,020	38,260	41,040	48,030
Del.	26,414	29,510	32,090	28,380	23,000	26,390	28,230
Md.	101,377	123,160	136,800	128,540	103,290	107,680	124,960
D. Va.	920	1,300	1,100	800	1,200	1,200	700
Total Northeast	282,974	353,440	382,810	366,600	316,340	334,920	393,440

Acreage of vegetable crops for market by states in the Northeastern Region							
Mass.	5,020	5,480	5,500	4,950	4,100	3,650	3,500
N. Y.	64,146	68,400	68,690	79,470	80,470	83,160	82,460
N. J.	90,334	101,800	104,770	101,600	107,250	104,350	103,260
Penna.	12,470	22,970	23,620	24,510	23,350	24,570	24,260
Del.	6,196	8,820	9,200	10,100	10,300	10,040	10,410
Md.	27,420	31,220	32,070	34,690	33,520	34,450	35,450
Total N.E. 7/2	205,586	238,690	243,850	255,120	259,020	260,220	259,340
1/ Preliminary data for planted acreage of processing crops; preliminary data for harvested acreage of crops grown for market.							

2/ No acreage of vegetables for processing reported for Rhode Island; no acreage of vegetables for market reported for other states in the region. Most of their fresh vegetable production comes from market gardens.

Source: Agricultural Marketing Service, U. S. Department of Agriculture.

Table 21—Acreage of potatoes and sweet potatoes by states in the Northeastern Region

POTATOES

State	Average 1928-32	1936	1937	1938	1939	1940	1941
				(1,000 acres)			/1:
Me.	175	161	170	167	162	165	162
N. H.	9.1	9.8	10.2	9.6	9.3	9.9	9.5
Vt.	16.1	16.5	16.5	15.7	15.0	15.3	14.5
Mass.	12.8	16.1	16.7	15.7	17.0	19.0	18.8
R. I.	2.5	4.0	4.3	3.9	4.1	4.5	4.4
Conn.	13.5	16.7	17.0	16.5	17.5	18.9	18.9
N. Y.	230	220	227	220	211	213	202
N. J.	41	52	58	54	55	58	55
Pa.	214	191	205	193	187	139	178
Del.	5	5	5	4	4	4.3	4.2
Md.	32	23	30	26	25	25.2	24.4
W. Va.	38	22	32	32	32	33	33
Total N. E.	789	752.1	791.7	757.4	738.9	755.1	724.7
Other							
36 states	2,538.3	2,310.5	2,382.2	2,265.2	2,278.8	2,297.7	2,200.9
Total U. S.	3,327.3	3,062.6	3,173.9	3,022.6	3,017.7	3,052.8	2,925.6

SWEET POTATOES

N. J.	13	16	17	14	15	15	16
Del.	7	7	6	5	5	5	5
Md.	9	8	8	8	9	9	10
Total N. E.	29	31	31	27	29	29	31
Other 36 states	742	791	809	856	833	743	812
Total U. S.	771	822	840	883	862	772	843

1/ Preliminary for planted acreage.

Source: Agriculture Marketing Service, U. S. Dept. of Agriculture.

Table 22 — Acreage of feed crops by states in the Northeast, Region

State	1925	1930	1935	1936	1937	1938	1939	1940	1941	1/
						1,000 acres harvested				
Me.	12	13	13	11	10	11	14	13	12	
N. H.	14	13	17	15	15	16	15	15	15	
Vt.	85	60	84	76	74	78	76	71	72	
Mass.	43	39	40	39	40	39	38	38	38	
R. I.	9	9	39	9	10	10	10	9	9	
Conn.	54	51	53	51	51	49	50	49	49	
N. Y.	691	555	734	640	672	685	699	692	671	
N. J.	199	168	200	202	208	197	189	189	183	
Pa.	1,408	1,219	1,384	1,315	1,368	1,368	1,368	1,341	1,301	
Del.	137	138	142	142	143	143	144	141	137	
Md.	554	508	516	511	516	501	506	501	461	
W. Va.	520	421	572	503	518	477	491	476	443	
Total N. E.	3,726	3,194	3,764	3,514	3,625	3,574	3,600	3,535	3,391	
HAY										
Me.	1,281	982	980	990	1,018	1,012	1,012	1,013	1,013	
N. H.	486	354	390	390	391	393	396	396	399	
Vt.	937	918	922	933	958	937	943	942	942	
Mass.	484	342	384	389	404	399	404	409	410	
R. I.	48	36	43	43	44	46	46	45	44	
Conn.	368	263	334	339	345	351	353	358	362	
N. Y.	4,985	4,000	4,174	4,194	4,160	4,074	4,018	4,052	4,077	
N. J.	273	218	239	225	235	228	231	230	233	
Pa.	3,058	2,509	2,495	2,488	2,485	2,432	2,420	2,413	2,435	
Del.	79	62	63	60	65	70	73	76	77	
Md.	420	372	395	374	389	401	416	425	430	
W. Va.	849	631	696	690	677	694	722	737	749	
Total N. E.	13,268	10,687	11,115	11,113	11,171	11,037	11,034	11,096	11,171	

1/ Preliminary

Source: Agricultural Marketing Service, U. S. Department of Agriculture

Table 22. (continued)--Acreage of feed crops by states in the Northeast Region

OATS

State	1925	1930	1935	1936	1937	1938	1939	1940	1941/1
Me.	135	120	113	118	113	114	121	113	113
N. H.	12	6	9	9	8	8	7	7	7
Vt.	83	56	66	64	55	56	57	55	56
Mass.	8	5	6	5	5	6	7	7	7
R. I.	2	2	2	2	2	2	2	2	2
Conn.	12	8	6	6	6	6	7	7	7
N. Y.	1,008	872	853	836	752	782	782	821	854
N. J.	47	40	48	49	51	48	45	43	45
Penna.	1,097	945	915	906	915	915	906	888	906
Del.	3	3	3	2	3	3	3	3	4
Maryland	59	49	46	39	38	41	41	35	39
W. Va.	158	140	69	67	85	86	73	68	71
Total N.E.	2,624	2,246	2,136	2,103	2,033	2,067	2,031	2,049	2,111
BARLEY									
Me.	3	3	5	5	4	4	4	4	4
Vt.	6	5	4	5	5	5	5	5	5
N. Y.	165	168	154	151	133	146	146	131	111
N. J.	1	1	1	1	1	2	5	7	7
Penna.	14	45	58	63	63	69	124	155	147
Del.	---	---	---	---	---	---	2/	---	---
Md.	11	12	37	40	36	43	72	79	82
W. Va.	---	---	4	5	5	8	11	13	12
Total N.E.	200	234	263	270	247	277	367	531	368
1/ Planted acreage.									
2/ None reported by AMS. 2,764 acres reported in 1939 by Census.									

Source: Agricultural Marketing Service, U. S. Department of Agriculture.

Table 23. -- Acreage of cash grain crops by states in the Northeast Region

WHEAT

State	1925	1930	1935	1936	1937	1938	1939	1940	1941/1
Me.	6	2	10	7	4	4	4	4	4
Vt.	2	1	--	--	--	--	--	--	--
N. Y.	308	224	283	282	346	303	273	309	319
N. J.	54	54	58	61	65	61	52	56	75
Penna.	1,106	997	1,004	1,033	1,073	1,050	926	917	945
Del.	103	105	84	86	86	83	72	74	76
Md.	476	486	428	449	476	471	377	388	404
W. Va.	109	121	149	164	171	156	147	139	154
Total N.E.	2,164	1,990	2,016	2,082	2,221	2,128	1,849	1,837	1,977

BUCKWHEAT

Me.	14	10	10	10	11	10	9	8	--
Vt.	3	2	2	2	2	2	2	2	--
N. Y.	235	196	140	112	144	161	134	133	--
N. J.	3	1	1	1	1	1	1	2	--
Penna.	194	167	146	124	130	140	113	121	--
Del.	3	1	1	1	1	1	1	1	--
Md.	7	7	6	5	5	6	5	5	--
W. Va.	34	17	20	13	17	16	15	14	--
Total N.E.	497	391	326	273	311	337	280	286	--

1/ Planted acreage.

Source: Agricultural Marketing Service, U. S. Department of Agriculture.

Table 24-- Production of cattle and calves by states in the Northeast Region

State	1935	1936	1937	1938	1939	1940
Me.	33,355	32,230	34,315	34,315	33,925	34,825
N. H.	16,890	17,260	17,470	18,930	18,630	18,210
Vt.	51,765	56,290	57,765	61,845	62,640	63,945
Mass.	24,100	24,160	25,120	25,240	24,590	25,400
R. I.	2,750	2,850	2,870	3,120	3,050	3,150
Conn.	23,360	24,705	24,105	24,900	24,725	25,165
N. Y.	306,120	315,605	333,395	344,070	355,150	360,810
N. J.	28,722	28,907	31,650	33,160	32,270	31,080
Pa.	260,550	257,600	262,420	262,695	273,470	285,680
Del.	7,135	6,985	6,735	6,915	7,555	7,760
Md.	48,885	48,840	52,285	50,670	50,000	54,900
D. Va.	119,975	118,900	115,710	121,990	126,965	124,005
Total	923,657	934,332	963,840	987,850	1,017,970	1,034,930
North-east						

— Production of hogs by states in the Northeast Region

State	1935	1936	1937	1938	1939	1940
Me.	14,790	16,595	19,190	18,280	17,650	16,000
N. H.	4,910	5,595	5,690	5,560	5,390	5,180
Vt.	8,870	10,660	11,480	11,660	11,870	10,190
Mass.	30,960	35,550	36,880	37,210	36,240	32,970
R. I.	2,230	2,590	3,150	2,750	2,870	3,000
Conn.	6,320	7,285	7,630	7,560	7,970	6,900
N. Y.	49,530	64,930	72,300	72,860	80,085	71,155
N. J.	19,775	24,630	25,280	24,590	27,160	23,890
Pa.	135,690	148,690	166,245	167,765	185,350	173,050
Del.	4,120	5,210	5,800	5,730	7,470	7,270
Md.	42,285	50,980	54,335	61,850	69,495	65,530
D. Va.	61,300	66,200	64,925	72,745	76,210	66,320
Total	330,780	438,915	472,905	488,560	527,760	486,465
North-east						

Source: Agricultural Marketing Service, U.S. Department of Agriculture

Table 25 Production of sheep and lambs by states in the Northeast Region

State	1935	1936	1937	1938	1939	1940
			1,000 pounds liveweight:			
Me.	1,560	1,440	1,380	1,200	1,300	1,370
N. H.	485	375	385	280	265	220
Vt.	935	780	740	725	755	680
Mass.	280	175	175	195	195	195
R. I.	130	130	130	130	130	130
Conn.	130	130	130	130	175	130
N. Y.	18,108	16,188	16,900	15,515	15,480	15,760
N. J.	225	225	195	150	225	225
Pa.	18,235	16,430	17,220	16,215	15,260	15,425
Del.	95	175	175	190	185	185
Md.	4,650	4,025	4,360	4,075	3,850	3,820
W. Va.	37,850	30,845	33,195	28,255	28,220	24,395
Total						
North-east	82,683	70,913	74,985	67,060	66,040	62,535

Table 26 — Production of wool by states in the Northeast Region

State	1935	1936	1937	1938	1939	1940
			1,000 pounds			
Me.						
N. H.	330	273	294	258	267	254
Vt.	74	68	65	57	59	50
Mass.	174	158	154	147	143	122
R. I.	48	42	43	43	44	42
Conn.	12	12	12	12	12	12
N. Y.	35	34	33	30	28	34
N. J.	2,528	2,318	2,518	2,304	2,301	2,257
Penna.	37	35	38	30	30	32
Del.	3,150	3,108	3,192	3,008	2,842	2,834
Md.	18	20	20	20	20	20
W. Va.	504	453	439	420	416	416
Total	2,902	2,670	2,666	2,515	2,564	2,366
North-east	9,812	9,191	9,474	8,844	8,726	8,439

Source: Agricultural Marketing Service, U. S. Department of Agriculture

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